Agnico Eagle Mines Limited
Meliadine Gold Project, Nunavut

Meliadine FEIS
Recommendation Responses

Submitted to:
Nunavut Impact Review Board
PO Box 1360
Cambridge Bay, Nu X0B 0C0

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Golder Associates

AGNICO EAGLE

This package provides Agnico Eagle Mines Limited's responses to the following recommendations on the Final Environmental Impact Statement for the Meliadine Gold Project.

KIA-IR-1	GN-6	DFO-23	EC-6.1.1
KIA-IR-2	GN-19	DFO-24	EC-6.2.2
KIA-IR-15	GN-20	DFO-25	EC-6.2.4
KIA-IR-21	GN-21	DFO-26	EC-6.2.5
KIA-IR-23	DFO-1	DFO-27	EC-6.3.2
KIA-IR-30	DFO-2	DFO-28	EC-6.3.3
KIA-IR-31	DFO-3	DFO-29	EC-6.4.2
KIA-IR-32	DFO-4	DFO-30	EC-6.4.5
KIA-IR-34	DFO-5	DFO-31	EC-6.4.7
KIA-IR-35	DFO-8	DFO-32	EC-6.4.8
KIA-IR-36	DFO-9	DFO-33	TC-1
KIA-IR-37	DFO-10	DFO-34	TC-2
KIA-IR-NEW-01	DFO-11	DFO-35	TC-3
KIA-IR-NEW-09	DFO-12	DFO-36	AANDC-4.10
KIA-IR-NEW-13	DFO-13	DFO-37	AANDC-4.15
KIA-IR-NEW-14	DFO-14	DFO-38	TC AANDC-1
KIA-IR-NEW-15	DFO-15	DFO-39	TC AANDC-12
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Interested Party:	Kivalliq Inuit Association (KIA)	Rec No.:	KIA-IR-01
Re:	Inadequate incorporation of Inuit Qaujimajatuqangit into the assessment		

Reference to FEIS:

- Volume 1 Popular Summary;
- Volume 9 Socio-economic Environmental and Impact Assessment, Section 9.3 (pages 9-53 to 9-112);
- Volume 9 Socio-economic Environmental and Impact Assessment, Appendix. 9.3-A; and
- Volume 6 Terrestrial Environment and Impact Assessment.

Recommendation made by Interested Party:

The KIA requests that AEM commit to, or NIRB require AEM to:
1. Provide the Caribou Decision Tree prior to the Final Hearings, providing details on monitoring linked to numbers, composition (cows and calves) or seasons that caribou approach the mine area. Linkages between monitoring and mitigation should be clear.
2. Clarify within the TEMMP issues related to critical caribou calving timing and distances from the road alignment.
3. 3 km^2 buffer: KIA considers this issue resolved.
4. Provide specific caribou road crossing sites.
5. Clarify how road surveillance monitoring determine if a threshold of no more than 10% deflection of caribou approaching roads and infrastructure occurs.

AEM's Response Recommendation:

The following responses are provided to the above requests, in the order that they are presented:

1. AEM will provide the requested information in the next revision to the TEMMP should the Project be approved to move on to the Regulatory Phase.
2. Critical caribou calving timing is included within the FEIS and will be presented in the next revision to the TEMMP should the Project be approved to move on to the Regulatory Phase.
3. No additional information required.
4. Specific caribou road crossing sites are not considered necessary as construction of the road did not use coarse/large rock adjacent to the roads; the construction material used was of sufficient size to allow for caribou crossing, and the grade of the road is not markedly higher than the surrounding tundra.
5. Over the past few years, satellite collar information was able to successfully forecast potential caribou movements towards the Project so that staff were prepared when caribou arrived. Once this information was received, surveillance points were regularly visited to complete visual scans for caribou. Surveyed areas included the surrounding areas where caribou could potentially move into the Project area, and areas based on previous (historical) location data. In addition, all truck drivers were alerted to be on the lookout for caribou, and any observations were also documented. Once this surveillance monitoring was initiated, and when the first caribou were observed, documentation of numbers (in some cases estimates) and locations of caribou was

also initiated. General behavior observations were also recorded, including: walking, running, foraging, bedding, and standing, among others. Behavioural observations along roads are of particular importance, and the following behaviours were recorded: cross, walk parallel, stop or deflect (i.e., turn in a direction of roughly 135° or greater from the direction of travel to the road). By having a rough estimate of numbers and recording behaviour near roads, a deflection rate can be determined.

Interested Party:	Kivalliq Inuit Association (KIA)	Rec No.:	KIA-IR-02
Re:	Inadequate consideration of caribou in the TEMMP		

Reference to FEIS: Volume 6, SD 6-4 Terrestrial Environment Management and Monitoring Plan; and Volume 9 Socio-economic Environmental and Impact Assessment, Section 9.3 (pages 9-53 to 9-112)

Recommendation made by Interested Party:

The KIA requests that AEM commit to, or NIRB require AEM to:
1. Clarify directly how monitoring links back to mitigation.
2. Ensure consistency between the Caribou Migration Procedure and the TEMMP.
3. Clarify how zone of influence (ZOI) monitoring for caribou will be conducted for the Project to verify impact predictions and provide data to direct mitigation to minimize impacts of the Project on caribou.
4. Sighting thresholds for actions to specifically address muskoxen should be specifically included in TEMMP.
5. Modify the threshold for project-related mortality for predatory mammals to include more than Arctic fox.

AEM's Response to Recommendation:
The following responses are provided to the above requests, in the order that they are presented:

1. How monitoring links back to mitigation is generally described in the TEMMP, but monitoring basically feeds an adaptive management framework, whereby changes in the monitoring parameters (i.e., relative abundance, distribution, and behavior, among others) are examined to determine if there is a linkage with the Project. If a linkage with the Project is found to be linked to the change in monitoring parameters (i.e., positive or negative), then adaptive management is implemented and additional or altered mitigation measures are made.
2. The Caribou Migration Procedure and the TEMMP will be reviewed and harmonized based on current best practices and learnings from the Meadowbank Project, and from the Meliadine Project during the last few years of exploration.
3. Potential ZOI effects are likely realized at a scale larger than the local site monitoring. Consequently, ZOI monitoring will need to be completed in close coordination with the GN Department of Environment (DoE), as they manage the caribou collaring program, where most of the data to support this initiative would come from. However, unlike other mining projects in Nunavut and the Northwest Territories, it will be difficult to determine a ZOI associated with the Meliadine Project in isolation. This is due to the Project's proximity to Rankin Inlet and several cabins frequented by residents during the summer months.
4. Sighting thresholds for actions to specifically address muskoxen would likely not differ from caribou thresholds; however, this information will be included in the next revision of the TEMMP should the Project be approved to move on to the Regulatory Phase. It should be noted that muskoxen are not regularly observed in the Project area, but may be in the future as their range continues to expand to the east.

5. The need for threshold criteria for Project-related mortality of predatory mammals other than Arctic fox will be discussed with the KIA and the GN, and if determined to be necessary, will be included in the next revision of the TEMMP, should the Project be approved to move on to the Regulatory Phase.

Interested Party:	Kivalliq Inuit Association (KIA)	Rec No.:	KIA-IR-15
Re:	The delineation of the CESA boundary		

FEIS Reference: Volume 4 Cumulative Effects Assessment

Recommendation made by Interested Party:

The KIA requests that AEM commit to, or NIRB require, prior to the Final Hearing, AEM justify (a) using locations not individual collared cows as the sample unit and (b) use of the 85% volume contour to delineate the Caribou Effects Study Area. If NIRB finds this justification is inadequate, then AEM should re-establish the CESA and redo the cumulative effects assessment.

AEM's Response to Recommendation:

AEM has addressed the KIA's comments in order:

(a) Lavers and Kelly (2008) was used to reference the typical method for estimating animal home ranges. The GN uses this typical home range estimation method (i.e., a kernel density estimator) to define seasonal ranges for the herd. When interested in the range or average of individual home range sizes, each collared animal is used as a sample unit. However, a herd's seasonal range will be larger than its' individual home ranges because the seasonal range will encompass the space between home ranges of individuals, or in practice, the space between home ranges of collared individuals. The correct sample unit for seasonal ranges is the herd, not individuals within the herd. Therefore, all collar locations were used as the sample unit for delineation of the CESA, rather than individual collared cows.

(b) While a 95% volume contour is the standard recommended to delineate animal home ranges (Lavers and Kelly 2008), selection of the CESA boundary required additional considerations. The 85% volume contour was used in the FEIS to define the CESA to avoid diluting effects measured as a percent of the area of the CESA, while also ensuring the majority of caribou locations in time and space were included in the boundary. For example, based on the calculations of footprint sizes used for estimating direct habitat loss (Volume 6, Table 6.6-17, page 6-207), a mine development footprint would be approximately 79 ha. If an increase in the CESA encompassed one additional mine development, and the CESA increased in size by more than 79 ha, the total percent habitat loss estimated would decrease. As identified on page 6-6 of Volume 6, Section 6.1.1.3, the GN has modified their approach to delineating seasonal home ranges for caribou herds, and have added new data to the delineation since the CESA was originally defined. The CESA now encompasses the core area of the spring migration, calving, post-calving, and summer ranges, as well as part of the rut, fall migration, and winter ranges (M. Campbell, Government of Nunavut, 2014, pers. comm). Therefore, the extent of the CESA used in the FEIS is considered adequate to assess the potential impacts of the Project within a cumulative effects framework.

Reference
Laver, P.N., and M.J. Kelly. 2008. A critical review of home range studies. Journal of Wildlife Management 72: 290-298.

Interested Party:	**Kivalliq Inuit Association (KIA) and Nunavut Tunngavik Inc. (NTI)**	**Rec No.:**	**KIA-IR-21**
Re:	**Baseline Hydrology of Meliadine Lake**		

Reference to FEIS: Volume 7 Freshwater Aquatic Environment and Impact Assessment, Section 7.3, pages 7-52 to 7-238.

Recommendation made by Interested Party:
Please provide a comprehensive table showing lake area, average depth, maximum depth, lake volume, monthly and annual discharge for Meliadine Lake. If bathymetric information has yet to be collected for Meliadine Lake, AEM should add an investigation of the lake bathymetry to the coming field season. If it exists it should be presented in the FEIS.

AEM's Response to Recommendation:

Partial bathymetric data were collected in the East and South basins of Meliadine Lake, covering approximately 32% of the lake. The bathymetric data were provided in the FEIS (Volume 7: throughout; SD 7-1: Section 7.3.1.2 (pages 155 to 157), as well as Appendix D: Figures Appendix D7b and Appendix D7c) and are reproduced below in **Table 1** (summary table of bathymetric data, reproduced from SD 7-1, Section 7.3.1.2, Table 7-3, page 156), Figure 1 (bathymetric map of the East basin, reproduced from Appendix D7b) and Figure 2 (bathymetric map of the South basin, reproduced from Appendix D7c). Due to the large size of Meliadine Lake, bathymetric data were collected where potential impacts on aquatic valued components were expected from the Project. Derived morphometric parameters of Meliadine Lake including surface area, volume, mean, and maximum depths were provided in the FEIS (Volume 7, SD 7-1, Table 7-2, page 155) and are reproduced in Table 2 below (based on a subset of Volume 7, SD 7-1, Table 7-2, page 155).

Derived hydrological regimes for Meliadine Lake, including monthly mean discharges, representative discharges and corresponding stages were provided in the FEIS (Volume 7, Appendix 7.3-A, Tables 7.3-A209 to 7.3-A212; pages 7.3-A-84 to 7.3-A-85) and are reproduced in Table 3 to Table 6 below. Derived annual water yields for each Project snapshot were also provided in the FEIS (Volume 7, Appendix 7.3-A, Table 7.3-A260, page 7.3-A-106) and are reproduced in Table 7 below.

In addition, as provided in Volume 7, Section 7.3.3.10.1.2 of the FEIS (page 7-183), pumping rates at closure will be managed to minimize potential effects to Meliadine Lake so that the total annual discharge does not fall below the 10-year dry condition. No pumping will occur in years during which Meliadine Lake discharges are forecast to naturally fall below the 10-year dry condition. As such, no

additional bathymetric data was deemed required for the FEIS. Additional bathymetric data will however be collected in targeted areas in the vicinity of the freshwater intake to assist with the design of that feature.

Table 1: Vertical Distribution of Lake Area and Volume in the East and South Basins of Meliadine Lake

Depth (m)	• Meliadine Lake - East Basin				• Meliadine Lake - South Basin			
	Area		Volume		Area		Volume	
	(ha)	*(%)*	(m^3 x 10^3)	*(%)*	(ha)	*(%)*	(m^3 x 10^3)	*(%)*
>0	2 211.6	100.0	98 851.1	100.0	1 135.1	100.0	48 428.9	100.0
>2	1 561.3	70.6	63 931.8	64.7	777.4	68.5	29 416.9	60.7
>4	1 138.9	51.5	37 119.6	37.6	497.5	43.8	16 772.2	34.6
>6	749.1	33.9	18,320.4	18.5	322.2	28.4	8 639.5	17.8
>8	372.2	16.8	7 382.6	7.5	175.6	15.5	3 735.6	7.7
>10	120.7	5.5	2 908.6	2.9	79.1	7.0	1 251.7	2.6
>12	57.1	2.6	1 331.8	1.4	15.6	1.4	386.5	0.8
>14	30.3	1.4	474.3	0.48	8.0	0.7	155.5	0.3
>16	10.8	0.49	93.4	0.09	2.8	0.2	52.4	0.1
>18	1.4	0.06	12.3	0.01	1.2	0.1	14.2	0.03
>20	0.2	0.01	0.3	<0.01	0.19	0.02	2.0	0.004
>22	-	-	-	-	0.02	<0.01	0.14	<0.001

Note: - = Not available

Table 2: Available Morphometric Characteristics of Meliadine Lake

Waterbody	• Surface Area (ha)	• Volume (m^3 x 10^3)	• Mean Depth (m)	Maximum Depth (m)
Meliadine Lake	10 689	-	-	-
Meliadine Lake – East Basin	2 212	98 581	4.5	21.3
Meliadine Lake – South Basin	1 135	48 429	4.3	22.2

Note: - = Not available

Table 3: Derived Monthly Mean Discharges at the Meliadine Lake Outlet - Baseline

Condition	Return Period (years)	• Monthly Mean Discharge (m^3/d)					
		May	Jun	Jul	Aug	Sep	Oct
Wet	100	653 000	4 720 000	2 170 000	519 000	349 000	235 000
	50	538 000	3 830 000	1 820 000	472 000	320 000	199 000
	20	393 000	2 840 000	1 400 000	407 000	279 000	154 000
	10	289 000	2 220 000	1 120 000	354 000	245 000	122 000
	5	186 000	1 690 000	854 000	296 000	206 000	90 500
Median	2	45 200	1 110 000	523 000	200 000	139 000	48 900
Dry	5	0	828 000	336 000	120 000	80 400	23 000
	10	0	747 000	273 000	84 800	52 700	13 600

Condition	Return Period (years)	• Monthly Mean Discharge (m^3/d)					
		May	Jun	Jul	Aug	Sep	Oct
	20	0	700 000	234 000	58 000	31 200	7 440
	50	0	662 000	200 000	30 500	8 540	1 850
	100	0	644 000	181 000	13 500	0	0

Note: m^3/d= cubic metres per day.

Table 4: Derived Representative Discharges at the Meliadine Lake Outlet - Baseline

Condition	Return Period (years)	Peak Daily Q (m^3/s)	7-Day Mean Peak Q (m^3/d)	14-Day Mean Peak Q (m^3/d)	30-Day Low Flow Q (m^3/d)	60-Day Low Flow Q (m^3/d)	90-Day Low Flow Q (m^3/d)
Wet	100	95.3	7 320 000	6 230 000	333 000	393 000	790 000
	50	80.2	6 190 000	5 290 000	306 000	364 000	708 000
	20	62.6	4 840 000	4 170 000	266 000	322 000	598 000
	10	50.8	3 910 000	3 390 000	233 000	287 000	513 000
	5	39.9	3 060 000	2 670 000	196 000	245 000	424 000
Median	2	26.1	1 980 000	1 760 000	132 000	172 000	286 000
Dry	5	18.0	1 370 000	1 230 000	76 200	105 000	182 000
	10	15.4	1 160 000	1 060 000	50 000	72 000	139 000
	20	13.9	1 030 000	944 000	29 800	46 200	108 000
	50	12.6	921 000	846 000	8 550	18 200	77 500
	100	11.9	861 000	793 000	0	256	59 400

Note: Q= discharge; m^3/s= cubic metres per second; m^3/d= cubic metres per day.

Table 5: Derived Monthly Mean Stages at the Meliadine Lake Outlet - Baseline

Condition	Return Period (years)	• Monthly Mean Stage (m)					
		May	Jun	Jul	Aug	Sep	Oct
Wet	100	0.454	0.786	0.633	0.426	0.381	0.342
	50	0.430	0.742	0.603	0.415	0.372	0.326
	20	0.394	0.683	0.561	0.398	0.358	0.304
	10	0.362	0.637	0.527	0.383	0.346	0.285
	5	0.320	0.591	0.489	0.364	0.329	0.262
Median	2	0.216	0.526	0.427	0.327	0.295	0.221
Dry	5	-	0.485	0.377	0.283	0.254	0.179
	10	-	0.471	0.356	0.257	0.226	0.155
	20	-	0.463	0.341	0.232	0.195	0.131
	50	-	0.455	0.327	0.194	0.136	0.089
	100	-	0.452	0.318	0.154	-	-

Note: m = metre; - = stage below the lake outlet during zero discharge.

Table 6: Derived Representative Stages at the Meliadine Lake Outlet - Baseline

Condition	Return Period (years)	Peak Daily Stage (m)	7-Day Mean Peak Stage (m)	14-Day Mean Peak Stage (m)	30-Day Low Flow Stage (m)	60-Day Low Flow Stage (m)	90-Day Low Flow Stage (m)
Wet	100	0.917	0.888	0.849	0.376	0.394	0.478
	50	0.874	0.847	0.811	0.368	0.386	0.464
	20	0.816	0.791	0.759	0.354	0.373	0.443
	10	0.770	0.746	0.717	0.341	0.361	0.424
	5	0.720	0.697	0.671	0.325	0.346	0.402
Median	2	0.640	0.617	0.598	0.291	0.313	0.361
Dry	5	0.577	0.557	0.541	0.250	0.273	0.318
	10	0.553	0.532	0.519	0.222	0.246	0.295
	20	0.537	0.515	0.503	0.192	0.217	0.275
	50	0.523	0.499	0.488	0.136	0.168	0.251
	100	0.515	0.490	0.479	-	0.051	0.233

Note: m = metre; - = stage below the lake outlet during zero discharge.

Table 7: Derived Annual Water Yields at the Meliadine Lake Outlet

Condition	Return Period (years)	• Annual Water Yield (mm)									
		BAS	P-3	P-2-1	MP1	MP2	MP3	MP4	MP5	CL	PC
Wet	100	374	374	374	374	374	374	374	374	341	374
	50	332	332	332	332	332	332	332	332	299	332
	20	279	279	279	279	279	279	279	279	246	279
	10	240	240	240	240	240	240	240	240	208	240
	5	202	202	202	202	202	202	202	202	171	202
Median	2	150	150	150	150	150	150	150	150	120	150
Dry	5	115	115	115	115	115	115	115	115	87	115
	10	102	102	102	102	102	102	102	102	75	102
	20	94	94	94	94	94	94	94	94	67	94
	50	86	86	86	86	86	86	86	86	59	86
	100	81	81	81	81	81	81	81	81	55	81

Note: mm = millimetre; BAS = Baseline; P-3 = Preproduction (Year -3); P-2-1 = Preproduction (Years -2 to -1); MP1 = Mining Phase 1; MP2 = Mining Phase 2; MP3 = Mining Phase 3; MP4 = Mining Phase 4; MP5 = Mining Phase 5; CL= Closure; PC = Post-Closure.

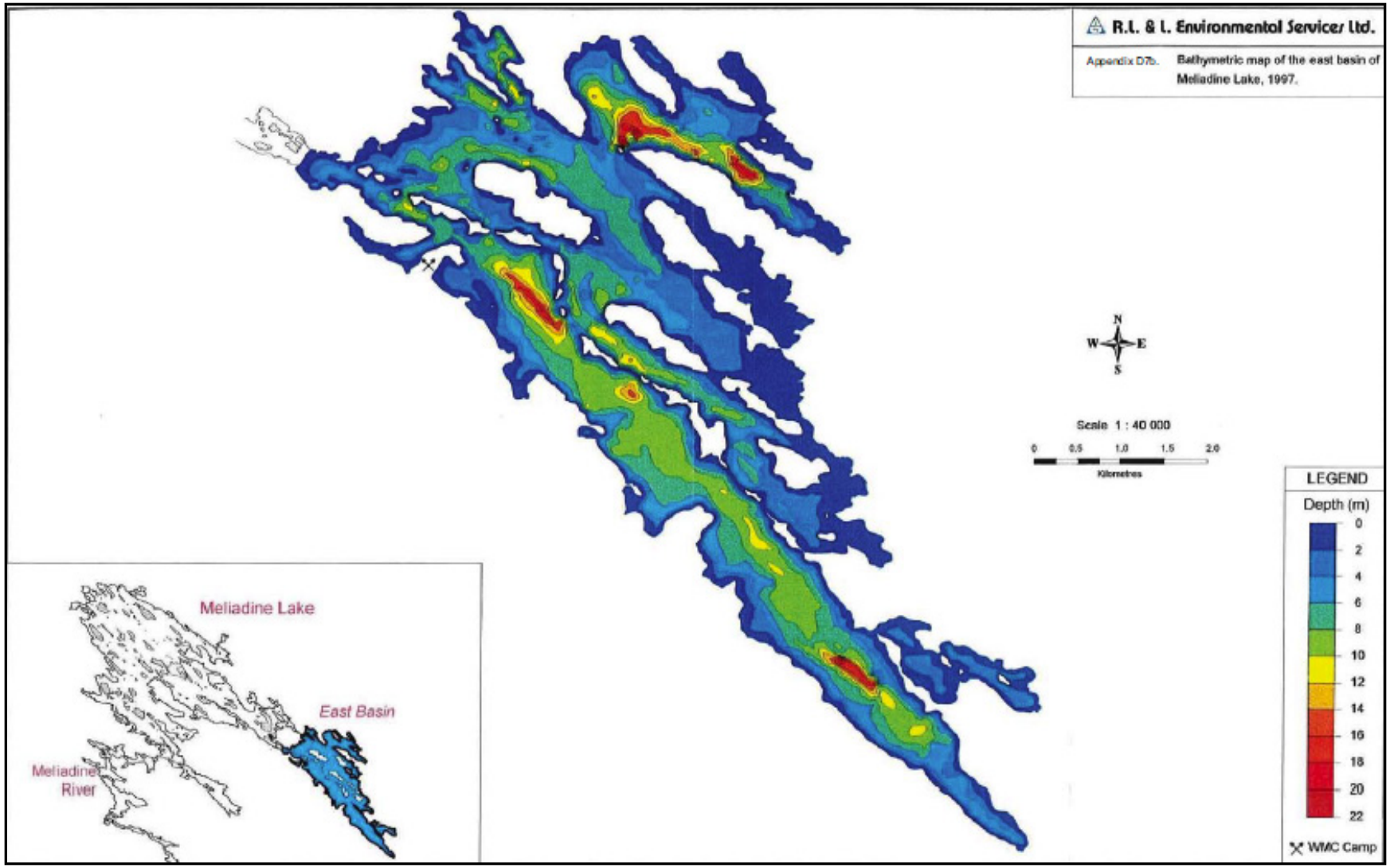

Figure 1: Bathymetric Map of the East Basin of Meliadine Lake

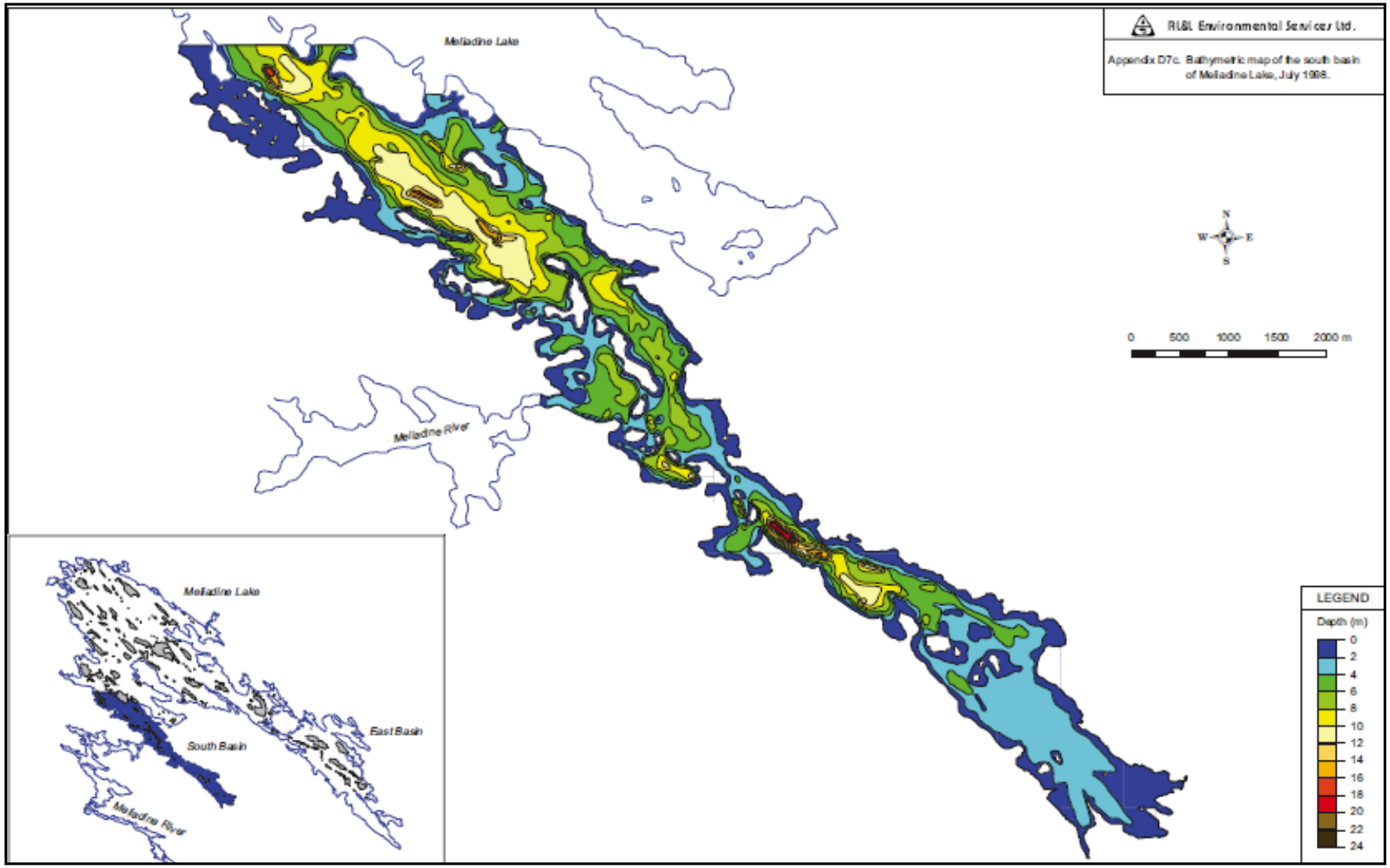

Figure 2: Bathymetric Map of the South Basin of Meliadine Lake

Interested Party:	Nunavut Tunngavik Inc. (NTI) & Kivalliq Inuit Association (KIA)	Rec No.:	KIA-IR-23
Re:	Fate of Overburden & Potential Use for Closure		

Reference to FEIS: Volume 1, Section 2.3.2.1

Recommendation Made By Interested Party:
We suggest that overburden be separately segregated from the waste rock piles for use during site reclamation as surficial organic matter. If AEM disagrees with this as a potential option then we reiterate the initial information request.

AEM's Response to Recommendation:
AEM does not disagree with the principle of separately segregating overburden from waste rock, so that during site reclamation this overburden can be used as surficial organic matter. In non-permafrost conditions this is the acknowledged best practice. However we do question the practicality of recovering such material from a separate stockpile in the type of climatic and permafrost conditions that are prevalent in this area of Nunavut. Our experience from Meadowbank suggests that once placed into a separate stockpile, this overburden material will become frozen and only the outer 1 to 2 metres of the stockpile will thaw during each summer. Further, this thawed layer may only be accessible for a short time period (several weeks), as it does not thaw all at once. This makes recovering the overburden almost impossible in a time frame that is of practical value for reclamation purposes. The material also tends to be ice-rich, making it very soupy (thus difficult to handle), once thawed.

AEM would greatly appreciate hearing from the KIA if it has information on techniques that have been used elsewhere in similar permafrost conditions that could make this recovery process practical. AEM would be open to exploring other methods to successfully separate and segregate this material; however, our experience in trying to recover thin layers from stockpiled overburden as the surface of the pile thaws has demonstrated to be impractical from time, cost and operational perspectives.

In the Meliadine Project description (Volume 2 – Project Description - specifically Section 2.6.1.5 Mining, Transport and Processing – at page 121) AEM made the following statement regarding the recovery and storage of overburden in separate, segregated cells located within the footprint of the waste rock dump:

"The stripped material will be used for construction where possible. If not suitable for construction, this overburden will be stored within the waste rock storage facilities. Because of the projected ice content, AEM has taken the conservative approach assuming that it is unlikely that much of the overburden will be suitable for construction material. Consequently AEM intends to permanently store this overburden within cells developed within the waste rock storage facilities. In this way, the ice lenses can be contained and the runoff controlled should this material thaw. In time, this overburden will be totally encapsulated within the stored waste rock and will become frozen again."

Interested Party:	Kivalliq Inuit Association (KIA)	Rec No.:	KIA-IR-30
Re:	Socio-Economic Environment and Impact Assessment – Population Demographics		

Reference to FEIS: Volume 1, Appendix 1.0-A; Volume 9, Socio-Economic Environment and Impact Assessment

Recommendation made by Interested Party:

Please disaggregate data for Aboriginal / Non-Aboriginal. Please add data from 1996 / 2001 Census to show trends.

AEM's Response to Recommendation:

Please find attached FEIS Table 9.2-4 disaggregated between Aboriginal and Non-Aboriginal populations[1]. In addition, selected demographic data from the 1996 and 2001 Census Profiles have been provided in attached Tables A and B for comparison. While data from the 2001 Census has been disaggregated between the Aboriginal and Non-Aboriginal populations, this was not possible for the data from the 1996 Census as specific Aboriginal Population Profiles were not released (Smith 2014).

Please note that, due to rounding and the level of statistical accuracy, the Aboriginal population totals do not add up to 100% in Table 9.2-4.

References:

Smith, Cameron. 2014. Statistics Canada. Personal communication with D. Wu (Golder) on July 28, 2014.

Statistics Canada. 1997. 1996 Census of Population, Statistics Canada Catalogue no. 95F0181XDB96001. Available at: http://www12.statcan.ca/english/census96/data/profiles/Rp-eng.cfm?LANG=E&APATH=3&DETAIL=0&DIM=0&FL=A&FREE=0&GC=0&GID=0&GK=0&GRP=1&PID=35782&PRID=0&PTYPE=3&S=0&SHOWALL=0&SUB=0&Temporal=1996&THEME=34&VID=0&VNAMEE=&VNAMEF=. Accessed July 28, 2014.

Statistics Canada. 2002. 2001 Community Profiles. Available at: http://www12.statcan.ca/english/profil01/CP01/Index.cfm. Accessed in May 2008.

Statistics Canada 2007a. Data quality and confidentiality standards and guidelines (public): Confidentiality (non-disclosure) rules. Available at: https://www12.statcan.gc.ca/census-recensement/2006/ref/notes/DQ-QD/confidentiality-confidentialite-eng.cfm. Accessed July 30, 2014.

[1] The non-Aboriginal population in most Kivalliq communities is small, and census data are suppressed by Statistics Canada in the interest of confidentiality. Thus, where possible, the non-Aboriginal population characteristics in Table 9.2-4 are derived by subtracting the Aboriginal population from the total population characteristic.

Statistics Canada. 2007b. 2006 Community Profiles. Available at: http://www12.statcan.ca/english/census06/data/profiles/community/Index.cfm?Lang=E. Accessed in May 2008.

Enclosed:

FEIS Volume 9, Table 9.2-4 – amended as requested
Table A: Selected Demographic Statistics, 1996 Data
Table B:Selected Demographic Statistics, 2001 Data

Table 9.2-4: Selected Demographic Statistics, 2006

	Arviat			Baker Lake			Chesterfield Inlet			Coral Harbour			Rankin Inlet			Repulse Bay			Whale Cove			Kivalliq			Nunavut		
	Total	Aboriginal	Non-Aboriginal	Total	Aboriginal	Non-Aboriginal	Total	Aboriginal	Non-Aboriginal	Total	Aboriginal	Non-Aboriginal	Total	Aboriginal	Non-Aboriginal	Total	Aboriginal	Non-Aboriginal	Total	Aboriginal	Non-Aboriginal	Total	Aboriginal	Non-Aboriginal	Total	Aboriginal	Non-Aboriginal
Population in 2006	2,060	1,915	140	1,728	1,560	160	332	295	30	769	735	30	2,358	1,955	390	748	715	35	353	340	15	8,348	7,510	800	29,474	24,915	4,410
Male	1,000	925	75	895	810	90	165	145	20	385	375	10	1,175	950	210	385	365	20	185	175	10	4,200	3,745	435	15,105	12,565	2,435
Female	1,055	990	65	830	755	70	165	145	15	385	365	15	1,180	1,000	175	360	345	15	170	160	10	4,145	3,765	360	14,365	12,350	1,970
Male/female ratio	0.95	0.93	1.15	1.08	1.07	1.29	1.00	1.00	1.33	1.00	1.03	0.67	1.00	0.95	1.20	1.07	1.06	1.33	1.12	1.09	1.00	1.01	0.99	1.21	1.05	1.02	1.24
Median age of the population (years)	19.5	18.4	n/a	22.0	20.3	n/a	24.0	23.1	n/a	18.9	18.3	n/a	23.9	19.9	n/a	18.9	18.3	n/a	19.1	18.5	n/a	21.1	19.3	n/a	23.1	20.1	n/a
Under 14 Population	825 (40.0%)	795 (41.5%)	n/a	605 (35.0%)	580 (37.2%)	n/a	120 (36.1%)	100 (33.9%)	n/a	305 (40.0%)	305 (41.5%)	n/a	770 (32.7%)	735 (37.6%)	n/a	295 (39.4%)	290 (40.6%)	n/a	145 (41.1%)	140 (41.2%)	n/a	3,060 (36.7%)	2,940 (39.1%)	n/a	9,995 (33.9%)	9,405 (37.7%)	n/a
Population aged 15 to 24	410 (19.9%)	400 (20.9%)	n/a	330 (19.1%)	310 (19.9%)	n/a	60 (18.1%)	50 (16.9%)	n/a	155 (20.2%)	150 (20.4%)	n/a	430 (18.2%)	405 (20.7%)	n/a	175 (23.4%)	170 (23.8%)	n/a	65 (18.4%)	65 (19.1%)	n/a	1,625 (19.5%)	1,560 (20.8%)	n/a	5,620 (19.0%)	5,190 (20.8%)	n/a
Population aged 25 to 64	785 (38.1%)	685 (35.8%)	n/a	720 (41.7%)	610 (39.1%)	n/a	140 (42.2%)	115 (40.0%)	n/a	285 (37.1%)	265 (36.1%)	n/a	1,080 (45.8%)	750 (38.4%)	n/a	260 (34.8%)	230 (32.2%)	n/a	130 (36.8%)	125 (36.8%)	n/a	3,415 (40.9%)	2,790 (37.2%)	n/a	13,040 (44.2%)	9,610 (38.6%)	n/a
Population aged 65+	45 (2.1%)	45 (2.3%)	n/a	75 (4.3%)	60 (3.8%)	n/a	5 (1.5%)	0 (0.0%)	n/a	25 (3.3%)	20 (2.7%)	n/a	70 (3.0%)	50 (2.6%)	n/a	15 (2.0%)	10 (1.4%)	n/a	15 (4.2%)	20* (5.8%)	n/a	245 (2.9%)	225 (3.0%)	n/a	815 (2.8%)	705 (2.8%)	n/a
Average household size	4.5	n/a	n/a	3.8	n/a	n/a	3.2	n/a	n/a	3.9	n/a	n/a	3.6	n/a	n/a	5.6	n/a	n/a	3.9	n/a	n/a	4.0	n/a	n/a	3.7	n/a	n/a
Lone parent families (%)	29.1	n/a	n/a	29.6	n/a	n/a	29.4	n/a	n/a	26.5	n/a	n/a	25.7	n/a	n/a	20.6	n/a	n/a	31.3	n/a	n/a	27.1	n/a	n/a	27.6	n/a	n/a
Median income in 2005, all families ($)	37,248	39,296	n/a	39,360	38,485	n/a	51,072	43,264	n/a	38,144	33,920	n/a	66,133	58,624	n/a	28,224	39,680	n/a	41,088	37,056	n/a	42,368	42,581	n/a	49,270	49,645	n/a
Median income in 2005, lone parent families ($)	17,984	n/a	n/a	21,312	n/a	n/a	21,376	n/a	n/a	21,632	n/a	n/a	27,296	n/a	n/a	10,592	n/a	n/a	24,384	n/a	n/a	21 248	n/a	n/a	22 576	n/a	n/a
Aboriginal identity population (%)	93.2	n/a	n/a	90.7	n/a	n/a	90.8	n/a	n/a	95.5	n/a	n/a	83.7	n/a	n/a	95.3	n/a	n/a	95.8	n/a	n/a	90.4	n/a	n/a	85.0	n/a	n/a
Mother tongue English (%)	6.6	n/a	n/a	34.6	n/a	n/a	14.1	n/a	n/a	5.9	n/a	n/a	28.6	n/a	n/a	6.0	n/a	n/a	2.9	n/a	n/a	18.6	n/a	n/a	26.5	n/a	n/a

	Arviat			Baker Lake			Chesterfield Inlet			Coral Harbour			Rankin Inlet			Repulse Bay			Whale Cove			Kivalliq			Nunavut		
	Total	Aboriginal	Non-Aboriginal	Total	Aboriginal	Non-Aboriginal	Total	Aboriginal	Non-Aboriginal	Total	Aboriginal	Non-Aboriginal	Total	Aboriginal	Non-Aboriginal	Total	Aboriginal	Non-Aboriginal	Total	Aboriginal	Non-Aboriginal	Total	Aboriginal	Non-Aboriginal	Total	Aboriginal	Non-Aboriginal
Mother tongue other (%)	93.0	n/a	n/a	65.4	n/a	n/a	87.5	n/a	n/a	94.8	n/a	n/a	70.7	n/a	n/a	93.3	n/a	n/a	97.1	n/a	n/a	81.0	n/a	n/a	72.2	n/a	n/a
Lived at same address 1 year ago (%)	94.1	95.5	n/a	88.5	89.3	n/a	91.9	91.2	n/a	88.7	90.2	n/a	83.0	84.8	n/a	90.3	92.0	n/a	83.8	84.8	n/a	88.3	89.9	n/a	84.3	87.0	n/a
Lived at same address 5 years ago (%)	75.7	78.3	n/a	68.4	71.1	n/a	62.1	65.4	n/a	64.9	65.6	n/a	56.7	59.8	n/a	67.5	69.2	n/a	51.7	52.6	n/a	65.4	68.2	n/a	57.8	63.0	n/a

Source: Statistics Canada (2007a)
Note: Mother tongue 'other' is almost exclusively Inuktitut
Shaded areas represent LSA community data.
Percentages may not add up to 100% due to rounding.
n/a – Information is not available

* Due to rounding, the Aboriginal numbers exceed the total numbers.

Table A: Selected Demographic Statistics, 1996 Data

	Arviat	Baker Lake	Chesterfield Inlet	Coral Harbour	Rankin Inlet	Repulse Bay	Whale Cove	Kivalliq	Nunavut
Population in 1996	1,559	1,385	337	669	2,058	559	301	2,058	n/a
Male	780	735	165	345	1,055	290	150	1,000	n/a
Female	775	650	170	320	1,000	270	155	1,055	n/a
Male/female ratio	1.01	1.13	0.97	1.08	1.06	1.07	0.97	0.95	n/a
Median age of the population (years)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Under 14 Population (%)	675 (43.3%)	555 (40.1%)	135 (40.1%)	295 (44.1%)	735 (35.7%)	250 (44.7%)	130 (43.2%)	410 (19.9%)	n/a
Population aged 15 to 24	315 (20.2%)	210 (15.2%)	55 (16.3%)	125 (18.7%)	355 (17.2%)	110 (19.7%)	55 (18.3%)	245 (11.9%)	n/a
Population aged 25 to 64	560 (35.9%)	565 (40.8%)	130 (38.6%)	265 (38.1%)	920 (44.7%)	195 (34.9%)	125 (41.5%)	1,090 (53.0%)	n/a
Population aged 65+	35 (2.2%)	65 (4.7%)	10 (3.0%)	5 (0.7%)	40 (1.9%)	15 (2.7%)	0 (0.0%)	305 (14.8%)	n/a
Average household size	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lone parent families	20.0	26.2	14.3	15.4	15.1	15.0	15.4	12.4	n/a
Median income, all families ($)	28,779	26,176	42,752	46,208	56,064	29,056	34,048	58,801	n/a

	Arviat	Baker Lake	Chesterfield Inlet	Coral Harbour	Rankin Inlet	Repulse Bay	Whale Cove	Kivalliq	Nunavut
Median income, lone parent families ($)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Aboriginal identity population (%)	94.3	92.1	92.4	93.3	76.6	94.6	93.3	5.8	n/a
Mother tongue English (%)	6.4	19.5	7.6	6.0	32.8	8.0	11.5	90.4	n/a
Mother tongue other (%)	92.6	80.1	90.9	91.8	63.8	90.2	86.9	4.9	n/a
Lived at same address 1 year ago (%)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lived at same address 5 years ago (%)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Source: Statistics Canada (1997)
n/a – information is not available.
Note: Mother tongue 'other' is almost exclusively Inuktitut
Shaded areas represent LSA community data
Percentages may not add up to 100% due to rounding
Data for the territory of Nunavut is not available for 1996 as the region had not yet separated from the Northwest Territories.
A separate Aboriginal Population Profile was not released with the 1996 Statistics Canada census, thus the communities cannot be disaggregated by Aboriginal and non-Aboriginal population.

Table B: Selected Demographic Statistics, 2001 Data

	Arviat			Baker Lake			Chesterfield Inlet			Coral Harbour			Rankin Inlet			Repulse Bay			Whale Cove			Kivalliq			Nunavut		
	Total	Aboriginal	Non-Aboriginal	Total	Aboriginal	Non-Aboriginal	Total	Aboriginal	Non-Aboriginal	Total	Aboriginal	Non-Aboriginal	Total	Aboriginal	Non-Aboriginal	Total	Aboriginal	Non-Aboriginal	Total	Aboriginal	Non-Aboriginal	Total	Aboriginal	Non-Aboriginal	Total	Aboriginal	Non-Aboriginal
Population in 2001	1,899	1,895	110	1,507	1415	95	345	325	10	712	695	20	2,177	1,720	440	612	590	20	305	295	10	7,557	6,825	705	26,745	22,720	3,945
Male	950	875	65	790	745	50	180	170	10	350	340	15	1,080	835	235	315	310	10	160	150	0	3,825	3,425	390	13,840	11,525	2,250
Female	950	910	40	715	675	40	165	150	0	360	350	10	1,095	890	205	295	285	10	145	145	10	3,730	3,400	315	12,905	11,200	1,700
Male/female ratio	1.00	0.96	1.63	1.10	1.10	1.25	1.09	1.13	n/a	0.97	0.97	1.50	0.99	0.94	1.15	1.07	1.09	1.00	1.10	1.03	0.00	1.03	1.01	1.24	1.07	1.03	1.32
Median age of the population (years)	18.3	17.4	n/a	21.7	20.9	n/a	21.2	19.7	n/a	17.3	16.3	n/a	23.3	19.6	n/a	17.2	16.3	n/a	19.4	18.3	n/a	20.3	18.4	n/a	22.1	19.1	n/a
Under 14 Population	815 (42.9%)	795 (42.0%)	n/a	585 (38.8%)	570 (40.3%)	n/a	130 (37.7%)	120 (36.9%)	n/a	325 (45.6%)	330* (47.5%)	n/a	800 (36.7%)	720 (41.9%)	n/a	270 (44.1%)	270 (45.8%)	n/a	130 (42.6%)	130 (44.1%)	n/a	3,045 (40.3%)	2,940 (43.1%)	n/a	9,925 (37.1%)	9,380 (41.3%)	n/a
Population aged 15 to 24	350 (18.4%)	335 (17.7%)	n/a	240 (15.9%)	225 (15.9%)	n/a	60 (17.4%)	60 (18.5%)	n/a	115 (16.2%)	115 (16.5%)	n/a	350 (16.1%)	305 (17.7%)	n/a	125 (20.4%)	125 (21.2%)	n/a	50 (16.4%)	50 (16.9%)	n/a	1,295 (17%).1	1,210 (17.7%)	n/a	4,650 (17.4%)	4,210 (18.5%)	n/a
Population aged 25 to 64	695 (36.6%)	625 (33.0%)	n/a	620 (41.1%)	550 (38.9%)	n/a	145 (42.0%)	130 (40.0%)	n/a	250 (35.1%)	235 (33.8%)	n/a	985 (45.2%)	655 (38.1%)	n/a	200 (32.7%)	185 (31.4%)	n/a	130 (42.6%)	105 (35.6%)	n/a	3,030 (40.1%)	2,480 (36.3%)	n/a	11,570 (43.3%)	8,500 (37.4%)	n/a
Population aged 65+	45 (2.4%)	35 (1.8%)	n/a	55 (3.6%)	65 (4.6%)	n/a	5 (1.4%)	10* (3.1%)	n/a	20 (2.8%)	20 (2.9%)	n/a	40 (1.8%)	35 (2.0%)	n/a	10 (1.6%)	20* (3.4%)	n/a	5 (1.6%)	20* (6.8%)	n/a	185 (2.4%)	185 (2.7%)	n/a	595 (2.2%)	620 (2.7%)	n/a
Average household size	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	25.6	n/a	n/a
Lone parent families (%)	22.2	n/a	n/a	29.6	n/a	n/a	31.3	n/a	n/a	20.7	n/a	n/a	27.8	n/a	n/a	21.4	n/a	n/a	21.4	n/a	n/a	26.5	n/a	n/a	n/a	n/a	n/a
Median income in 2000, all families ($)	32,064	33,408	n/a	28,075	27,904	n/a	37,632	38,016	n/a	34,688	32,064	n/a	51,328	48,192	n/a	30,784	37,035	n/a	34,176	30.256	n/a	36,173	35,627	n/a	39,424	38,348	n/a
Median income in 2000, lone parent families ($)	18,496	n/a	n/a	17,632	n/a	n/a	26,304	n/a	n/a	17,344	n/a	n/a	27,584	n/a	n/a	20,032	n/a	n/a	33,920	n/a	n/a	19,925	n/a	n/a	20,250	n/a	n/a
Aboriginal identity population (%)	94.5	n/a	n/a	93.7	n/a	n/a	98.5	n/a	n/a	97.9	n/a	n/a	79.4	n/a	n/a	96.7	n/a	n/a	96.7	n/a	n/a	90.7	n/a	n/a	85.2	n/a	n/a
Mother tongue English (%)	7.1	n/a	n/a	28.6	n/a	n/a	7.5	n/a	n/a	6.3	n/a	n/a	38.1	n/a	n/a	4.9	n/a	n/a	6.6	n/a	n/a	20.1	n/a	n/a	26.2	n/a	n/a

	Arviat			Baker Lake			Chesterfield Inlet			Coral Harbour			Rankin Inlet			Repulse Bay			Whale Cove			Kivalliq			Nunavut		
	Total	Aboriginal	Non-Aboriginal	Total	Aboriginal	Non-Aboriginal	Total	Aboriginal	Non-Aboriginal	Total	Aboriginal	Non-Aboriginal	Total	Aboriginal	Non-Aboriginal	Total	Aboriginal	Non-Aboriginal	Total	Aboriginal	Non-Aboriginal	Total	Aboriginal	Non-Aboriginal	Total	Aboriginal	Non-Aboriginal
Mother tongue other (%)	92.3	n/a	n/a	70.8	n/a	n/a	91.0	n/a	n/a	93.7	n/a	n/a	61.2	n/a	n/a	95.1	n/a	n/a	93.4	n/a	n/a	79.4	n/a	n/a	72.4	n/a	n/a
Lived at same address 1 year ago (%)	88.8	90.2	n/a	85.1	85.5	n/a	82.8	81.0	n/a	86.3	87.4	n/a	76.1	78.0	n/a	79.8	81.6	n/a	88.3	89.7	n/a	83.1	89.9	n/a	78.9	82.4	n/a
Lived at same address 5 years ago (%)	61.4	64.3	n/a	46.1	46.8	n/a	50.8	52.6	n/a	52.5	53.9	n/a	34.0	37.6	n/a	49.5	49.5	n/a	41.5	42.0	n/a	47.2	68.2	n/a	44.3	48.4	n/a

Source: Statistics Canada (2002)

Note: Mother tongue 'other' is almost exclusively Inuktitut
Shaded areas represent LSA community data.
Percentages may not add up to 100% due to rounding.
n/a – Information is not available
* Due to rounding, the Aboriginal numbers exceed the total number

Interested Party:	Kivalliq Inuit Association (KIA)	Rec No.:	KIA-IR-31
Re:	Socio-Economic Environment and Impact Assessment		

Reference to FEIS: Volume 1, Appendix 1.0-A; Volume 9, Socio-Economic Environment and Impact Assessment

Recommendation made by Interested Party:
Table 9.3.8 – Data are not disaggregated between Inuit and non-Inuit.

Please disaggregate data for Aboriginal / Non-Aboriginal Table 9.3.8; Table 9.3.9; Table 9.3.10.

AEM's Response to Recommendation:

Please find attached Tables 9.3-8 (page 9-85), 9.3-9 (page 9-86), and 9.3-10 (page 9-87) disaggregated to show the data for the Aboriginal population (Statistics Canada 2007a). In Table 9.3-8, Non-Aboriginal labour force data has been derived, where possible, by subtracting the Aboriginal labour force numbers from the total labour force numbers. Non-Aboriginal populations in individual communities are small, and so data on these populations is suppressed by Statistics Canada in the interest of confidentiality.

Enclosed:
Table 9.3-8: Kivalliq Employment, 2001 and 2006
Table 9.3-9: Employment and Income, 2006
Table 9.3-10: Comparison of Kivalliq's Participation and Unemployment Rates (%), 2006

References:

Statistics Canada. 2002. 2001 Community Profiles. Available at: http://www12.statcan.ca/english/profil01/CP01/Index.cfm. Accessed in May 2008.

Statistics Canada 2007a. Data quality and confidentiality standards and guidelines (public): Confidentiality (non-disclosure rules. Available at: https://www12.statcan.gc.ca/census-recensement/2006/ref/notes/DQ-QD/confidentiality-confidentialite-eng.cfm. Accessed July 30, 2014.

Statistics Canada. 2007b. 2006 Community Profiles. Available at: http://www12.statcan.ca/english/census06/data/profiles/community/Index.cfm?Lang=E. Accessed in May 2008.

Table 9.3-8: Kivalliq Employment, 2001 and 2006

	2001			2006		
	Total	Aboriginal	Non-Aboriginal	Total	Aboriginal	Non-Aboriginal
Labour Force	2,775	2,235	540	3,240	2,630	610
Participation Rate (%)	66.9	62.9	n/a	61.7	57.5	n/a
Unemployment Rate (%)	18.6	21.9	n/a	15.7	18.8	n/a

Source: Statistics Canada (2002, 2007b)
n/a – Information is not available.
Non-Aboriginal data cannot be disaggregated from the data provided by Statistics Canada. Due to rounding, the Non-Aboriginal rates cannot be assumed.

Table 9.3-9: Employment and Income, 2006

	Arviat						Baker Lake						Chesterfield Inlet						Coral Harbour					
	Total Population			Aboriginal			Total Population			Aboriginal			Total Population			Aboriginal			Total Population			Aboriginal		
	All	M	F	All	M	F	All	M	F	All	M	F	All	M	F	All	M	F	All	M	F	All	M	F
Participation rate (%)	49.8	52.5	47.6	46.0	48.2	44.7	59.2	61.5	55.1	55.8	59.8	52.6	74.4	71.4	77.3	73.7	66.7	78.9	66.7	71.1	62.5	66.7	69.8	62.2
Unemployment rate (%)	13.0	15.6	8.5	16.5	20.8	11.8	18.9	25.0	11.9	20.9	27.9	14.0	15.6	26.7	11.8	14.3	25.0	13.3	19.4	18.8	20	20.7	23.3	21.4
Median earnings, persons 15 years and over ($)	26,048	31,168	22,976	21,517	26,048	19,995	15,019	15,328	13,984	12,028	13,043	11,216	20,032	20,288	18,240	18,208	20,000	17,344	10,784	10,965	10,496	10,030	10,040	10,016
Median income, persons 15 years and over ($)	15,200	14,688	16,096	13,552	12,448	14,656	15,904	15,232	16,512	14827	13,504	15,520	21,184	22,848	19,648	20,011	21,472	19,232	14,029	12,480	15,104	13,376	10,992	14,176
Composition of Total Income (100%)																								
Earnings, as % of total income	81.2	87.6	74.8	76.8	84.0	68.6	79.6	86.0	71.1	73.5	82.9	63.8	82.8	82.8	82.7	81.5	83.5	79.6	74.9	78.1	70.3	73.9	83.1	68
Government transfers, as % of total income	17.3	10.7	23.8	22.7	14.2	30.8	19.4	12.4	26.7	26.0	16.8	34.5	12.3	11.6	13.8	15.7	15.4	17.0	21.1	14.8	26.8	23.1	16.7	27.7
Other money as % of total income	1.2	1.3	1.1	0.8	0.6	1.0	1.2	0.8	1.7	1.0	0.7	1.2	5.3	8.1	2.7	2.1	2.7	1.5	3.6	4.3	2.9	3.2	3.8	2.6

	Rankin Inlet						Repulse Bay						Whale Cove						Kivalliq					
	Total Population			Aboriginal			Total Population			Aboriginal			Total Population			Aboriginal			Total Population			Aboriginal		
	All	M	F	All	M	F	All	M	F	All	M	F	All	M	F	All	M	F	All	M	F	All	M	F
Participation rate (%)	71.7	72.3	71.4	64.8	65.3	64.3	61.1	63.8	54.5	58.8	65.1	53.7	47.6	50	47.6	46.2	45.0	40.0	61.7	63.7	59.5	57.5	59.4	55.7
Unemployment rate (%)	10.2	11.3	9.1	13.3	16.5	10.1	34.5	36.7	33.3	36.0	39.3	31.8	10.0	18.2	20.0	16.7	22.2	25.0	15.7	18.9	12.3	18.8	22.4	14.6
Median earnings, persons 15 years and over ($)	32,736	34,688	32,026	23,949	22,848	25,062	11,982	11,992	11,840	10,408	10,720	9,632	24,992	21,824	26,048	21,568	19,264	23,424	23,232	24,040	21,909	17,008	17,088	16,981
Median income, persons 15 years and over ($)	26,389	26,176	26,880	19,104	17,568	21,035	10,912	11,264	10,464	10,432	10,488	9,440	16,352	15,328	19,520	15,312	13,632	15,920	17,440	16,832	17,760	14,970	13,776	15,607
Composition of Total Income (100%)																								
Earnings, as % of total income	90.4	93.6	88.4	87.9	90.9	84.4	71.7	80.8	62.3	67.6	77.6	55.7	80.7	92.8	72.6	79.2	85.3	67.8	84.1	88.9	78.9	79.3	85.8	73.0
Government transfers, as % of total income	7.5	5.0	10.4	11.3	7.8	14.5	26.3	16.7	36.3	29.1	17.0	42.8	17.1	10.4	26.1	21.8	14.0	31.3	14.2	9.2	19.6	19.4	13.0	25.5
Other money as % of total income	1.8	2.0	1.5	1.1	0.8	1.3	1.9	1.8	2.0	1.7	2.2	1.1	0.1	0.1	0.1	0.1	0.1	0.2	1.8	2.0	1.6	1.2	1.2	1.3

	Nunavut					
	Total Population			Aboriginal		
	All	M	F	All	M	F
Participation rate (%)	65.3	67.9	62.6	59.1	61.2	57
Unemployment rate (%)	15.6	17.8	13.0	20.1	23.7	16.2
Median earnings, persons 15 years and over ($)	26,848	29,235	24,973	17,959	18,696	16,960
Median income, persons 15 years and over ($)	20,982	22,552	20,047	16,069	15,875	16,250
Composition of Total Income (100%)						
Earnings, as % of total income	86.5	90	82.3	80.6	86.0	75.2
Government transfers, as % of total income	11.2	7.4	15.8	17.5	12.1	23.0
Other money as % of total income	2.3	2.6	1.9	1.8	1.9	1.7

Source: Statistics Canada (2007b)

Note: Shaded areas represent LSA community data; M = males; F = females

Non-Aboriginal data cannot be disaggregated from the data provided by Statistics Canada. Due to rounding, the Non-Aboriginal rates cannot be assumed.

Table 9.3-10: Comparison of Kivalliq's Participation and Unemployment Rates (%), 2006

	• Participation		• Unemployment	
	• Total	Aboriginal	• Total	Aboriginal
Kivalliq				
All	61.7	57.5	15.7	18.8
Male	63.7	59.4	18.9	22.4
Female	59.5	55.7	12.3	14.6
Nunavut				
All	65.3	59.1	15.6	20.1
Male	67.9	61.2	17.8	23.7
Female	62.6	57.0	13.0	16.2
Canada				
All	66.8	63.0	6.6	14.8
Male	72.3	67.3	6.5	16.1
Female	61.6	59.1	6.6	13.5

Source: Statistics Canada (2007b)

Note – Information for Non-Aboriginals is not available. Non-Aboriginal data cannot be disaggregated from the data provided by Statistics Canada. Due to rounding, the Non-Aboriginal rates cannot be assumed.

Interested Party:	Kivalliq Inuit Association (KIA)	Rec No.:	KIA-IR-32
Re:	Socio-Economic Environment and Impact Assessment – Traditional Land Use and Employment		

Reference to FEIS: Volume 1, Appendix 1.0-A; Volume 9, Socio-Economic Environment and Impact Assessment

DEIS Comment made by Interested Party:

1. Section 9.3.1.6.2 – Local and Regional Economy Characteristics Related to Traditional Land Use Activities and Wage Incomes – Box 9.3.1 (Employment), Box 9.3.2 (Perception of the mining sector), are not linked to this section.

2. Section "Land based economic activity" – This section is the same as the one provided in Section 9.3.1.6.2 – Local and Regional Economy Characteristics Related to Traditional Land Use Activities and Wage Incomes, including tables 9.4.13 (same as 9.3.6), 9.4.14 (same as 9.3.14), 9.4.15 (same as 9.3.8), 9.4.16 (same as 9.3.10), Figure 9.4.2 (same as Fig 9.3.4), table 9.4.17 (same as 9.3.11), Box 9.4.1 (same as 9.3.1). Can all these information be referenced for easier flow of the report and less duplication of information).

Recommendation:

1. *Can sections 9.3.1.6.2 and 9.3.1 be linked to allow for more efficient review of the data.*
2. *Can all these information be referenced for easier flow of the report and less duplication of information.*

AEM's Response to Recommendation:

AEM agrees to reorganize the discussion in the FEIS, and include the reference provided, as appropriate.

AEM commits to review the additional data provided by KIA in reference to the Socio-Economic Environment and include, where appropriate within the FEIS.

FEIS Technical Comment

The information is still provided in the same format.

Interested Party's Response to FEIS Review:

The information is still the same. Could it be referenced.

Response:

1. This request is unclear. There is no Section 9.3.1.6.2 in the FEIS; however there is an errant reference to Section 9.3.1.6.2 on page 9-96 of Volume 9 of the FEIS, but this is not the source of the recommendation in question 1. The related section is found in Volume 9, Section 9.3.1.4.2 (Local and Regional Economy Characteristics Related to Traditional Land Use Activities and Wage Incomes – pages

9-80 to 9-93), which includes a section on traditional land use, Box 9.3-1 Employment, and Box 9.3-2 Perceptions of the Mining Sector. Both boxes are referred to in text in this section, and all are encompassed in Section 9.3.1.2.

2. There is some overlap between the traditional land use baseline and the economic baseline in terms of the discussion traditional economy. To provide a complete and easily accessible account of this overlapping topic to reviewers of respective sections, some information is duplicated between the sections. Where duplication occurs, cross-references are provided.

Interested Party:	Kivalliq Inuit Association (KIA)	Rec No.:	KIA-IR-34
Re:	Socio-Economic Environment and Impact Assessment		

Reference to FEIS: Volume 1, Appendix 1.0-A; Volume 9, Socio-Economic Environment and Impact Assessment

Recommendation made by Interested Party: *Section 9.5.1.2 – Education levels – Table 9.5.1 – Data are not disaggregated for Inuit and non-Inuit.*

Provide disaggregated data between Inuit and non-Inuit, and data for Kivalliq and Nunavut (for comparison).

Interested Party's Recommendation to FEIS Review:

Please disaggregate data for Aboriginal / Non-Aboriginal Table 9.5.1; Table 9.5.2.
Please add High school completion rate for each community.
Please add data on Northern Food Basket.

AEM's Response to Recommendation:

Please find enclosed Table 9.5-1 and Table 9.5-2 (from Volume 9 of the FEIS – pages 9-199 and pages 9-201 to 9-204 respectively) disaggregated to show the data for the Aboriginal population. Non-Aboriginal populations in individual communities are small, and so data on these populations is supressed by Statistics Canada in the interest of confidentiality (Statistics Canada 2007a). High school completion rates by community are provided in the FEIS in Table 9.7-3 (page 9-279): K-12 Educational Institutions in Kivalliq, Capacity and Graduation Rates (2013 / 2014). This recommendation pertains to educational attainment and completion rates.

Information on Northern Food Basket (NFB) Indicators for Kivalliq is provided below (AANDC 2010).

- Both perishable and non-perishable food generally costs more in the Baffin Region of Nunavut than in Nunavik. In the Baffin Region, the lowest cost for the perishable portion of the basket was in Grise Fiord ($221 in 2007), the most remote community, which has only a co-op store.

- As expected, in 2006 perishables cost more in communities in the Kivalliq Region served from Churchill than both communities in the Baffin Region served from Val-d'Or, and communities in the Kitikmeot Region served from Yellowknife. The designation of Winnipeg as an entry point for service to the Kivalliq Region in May 2007 has reduced the gap between prices in most of these communities and Churchill. While the cost of perishable food increased by 9 percent in Churchill

between 2006 and 2007, the cost in Repulse Bay and Coral Harbour decreased by 5 to 7 percent. However, retailers in Whale Cove, where there is only one store, and in Chesterfield Inlet did not pass the savings on to their customers.

Historically, Churchill was the only entry point for service to the Kivalliq Region. A review of the Churchill entry point was undertaken in 2005, which resulted in the designation of Winnipeg as an additional entry point in May 2007. Food originating in Winnipeg is flown directly to Rankin Inlet. For all other Kivalliq communities, food is trucked to Thompson where it is flown to its final destination. In June 2009, Thompson was also designated as an entry point for all Kivalliq communities.

For Churchill and the communities in the Kivalliq Region, the cost of the NFB is based on the average price available for each item in the basket, using a specific purchase size and, for most products, all national and store brands. For certain products, the average price of a specific dominant national brand is used. For Winnipeg and Thompson, the cost of the basket is based on prices in one store.

Food price surveys were conducted by officials of Indian and Northern Affairs Canada (now AANDC) in Kivalliq communities, entry points, supply centres and southern cities from 2005 to 2010 (Table 1).

In Kivalliq Region the cost of the perishable portion of the basket ranged from $259 to $300 in 2009 and from $256 to $294 in 2010. Food costs in Rankin Inlet, Arviat and Whale Cove tend to be slightly lower than in Repulse Bay, Coral Harbour, Baker Lake and Chesterfield Inlet. Adding Winnipeg as a supply centre in 2007 provided for a more complete picture and also expanded the range of costs of perishables.

In 2007 the Northern Food Basked was renamed the “Revised Northern Food basket” to reflect updated nutrition information and recommendations. Tables 2 to 4 below summarize the costs of the Revised Northern Food Basket in Nunavut communities, Winnipeg, Thompson and Churchill since 2005. Note that the figures shown for the total cost of the Revised Northern Food Basket in Table 4 may vary from the sum of the perishables (Table 2) and non-perishables (Table 3) due to rounding.

Table 1: Food Price Surveys 2005 to 2010

KIVALLIQ REGION					
Communities	2005	2006	2007	2009	2010
Arviat	March	April	September	March	February
Whale Cove	February	April	September	March	February
Rankin Inlet	March	March	September	March	March
Chesterfield Inlet	March	March	September		March
Baker Lake	March	March	September	March	March
Coral Harbour		April	September	March	February
Repulse Bay	March	April	September		April
Entry Points, Supply Centres and Southern Cities					
Winnipeg	November		September	March	March
Thompson				March	March
Churchill	March	April	September	March	February

Table 2: Revised Northern Food Basket Costs - Perishables (2005 to 2010)

Weekly cost of the Revised Northern Food Basket (RNFB) for a family of four - Kivalliq Region -					
	Perishables				
	2005	2006	2007	2009	2010
Entry Points, Supply Centres and Southern Cities					
Winnipeg	$134		$141	$158	$152
Thompson				$157	$156
Churchill	$172	$183	$199	$224	$216
Communities					
Arviat	$245	$265	$271	$275	$280
Whale Cove	$250	$274	$293	$259	$256
Rankin Inlet	$265	$276	$270	$268	$262
Chesterfield Inlet	$276	$286	$305		$284
Baker Lake	$269	$273	$279	$295	$288
Repulse Bay	$268	$295	$275		$285
Coral Harbour		$307	$293	$300	$294

Table 3: Revised Northern Food Basket Costs – Non-perishables (2005 to 2010)

Weekly cost of the Revised Northern Food Basket (RNFB) for a family of four - Kivalliq Region -					
	Non-perishables				
	2005	2006	2007	2009	2010
Entry Points, Supply Centres and Southern Cities					
Winnipeg	$75		$76	$84	$89
Thompson				$84	$89
Churchill	$87	$92	$101	$106	$104
Communities					
Arviat	$115	$120	$125	$133	$139
Whale Cove	$124	$127	$144	$145	$152
Rankin Inlet	$130	$141	$146	$150	$154
Chesterfield Inlet	$125	$122	$144		$145
Baker Lake	$119	$131	$141	$143	$146
Repulse Bay	$118	$125	$136		$143
Coral Harbour		$136	$136	$156	$148

Table 4: Revised Northern Food Basket Costs - Total (2005 to 2010)

Weekly cost of the Revised Northern Food Basket (RNFB) for a family of four - Kivalliq Region -					
	Total				
	2005	2006	2007	2009	2010
Entry Points, Supply Centres and Southern Cities					
Winnipeg	$209		$218	$243	$242
Thompson				$241	$245
Churchill	$259	$276	$299	$330	$320
Communities					
Arviat	$361	$385	$396	$408	$419
Whale Cove	$374	$401	$438	$403	$408
Rankin Inlet	$395	$417	$416	$418	$416
Chesterfield Inlet	$401	$408	$448		$430
Baker Lake	$389	$404	$419	$438	$434
Repulse Bay	$386	$420	$411		$428
Coral Harbour		$443	$430	$457	$442

Enclosed:

Table 9.5-1: Educational Achievement by Region, Age Group and Gender, 2006 (%) – disaggregated as requested.

Table 9.5-2: Education in Kivalliq Communities, 2006 (%) – disaggregated as requested.

References:

Aboriginal Affairs and Northern Development Canada (AANDC). 2010. Regional Results of Price Surveys. Available at: http://www.aadnc-aandc.gc.ca/eng/1100100035986/1100100035987#kvr. Accessed July 30, 2014.

Statistics Canada 2007a. Data quality and confidentiality standards and guidelines (public): Confidentiality (non-disclosure rules. Available at: https://www12.statcan.gc.ca/census-recensement/2006/ref/notes/DQ-QD/confidentiality-confidentialite-eng.cfm. Accessed July 30, 2014.

Statistics Canada. 2007b. 2006 Community Profiles. Available at: http://www12.statcan.ca/english/census06/data/profiles/community/Index.cfm?Lang=E. Accessed in May 2008.

Table 9.5-1: Educational Achievement by Region, Age Group and Gender, 2006 (%)

	• Kivalliq						• Kitikmeot						• Qikiqtaaluk						• Nunavut					
	Aboriginal			Total			Aboriginal			Total			Aboriginal			Total			Aboriginal			Total		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total population 15 years and over																								
No certificate, diploma or degree	72.4	71.8	73.0	64.6	63.5	65.7	68.1	65.1	71.1	61.4	58.5	64.5	66.8	67.4	66.3	52.3	51.8	52.8	68.7	68.2	69.2	57.3	56.1	58.6
High school certificate or equivalent	9.3	7.9	10.5	10.1	9.0	11.0	7.1	7.9	5.9	7.7	8.5	6.7	10.7	10.2	11.4	12.4	12.0	12.8	9.6	9.1	10.0	10.9	10.6	11.2
Apprenticeship or trades certificate or diploma	6.3	10.0	2.6	6.4	10.2	2.5	11.0	15.8	6.6	10.9	15.5	6.1	5.3	7.9	2.6	5.9	9.1	2.6	6.7	10.1	3.4	7.0	10.5	3.2
Post-secondary certificate or diploma below bachelor level	10.8	9.6	12.3	12.7	11.7	13.7	12.3	10.9	14.5	13.1	12.4	14.0	14.5	12.6	16.3	18.2	16.7	19.9	13.0	11.4	14.7	15.8	14.6	17.1
University certificate, diploma or degree	1.1	0.7	1.5	6.4	5.6	7.1	1.5	0.7	2.3	6.7	5.1	8.1	2.7	1.9	3.6	11.1	10.3	12.0	2.0	1.2	2.8	9.0	8.1	10.0
Population aged 15 to 24																								
No certificate, diploma or degree	87.2	89.2	85.2	85.8	88.3	83.9	86.6	85.4	88.9	85.7	84.0	86.5	79.2	82.0	76.9	74.3	76.6	71.8	83.0	84.7	81.4	79.9	81.3	78.3
High school certificate or equivalent	9.9	8.3	11.0	10.5	9.2	11.8	8.4	8.7	8.1	8.6	8.5	8.7	14.7	12.9	16.3	17.1	15.5	18.6	11.9	10.7	13.0	13.6	12.6	14.7
Apprenticeship or trades certificate or diploma	0.6	1.3	1.3	0.6	1.2	1.2	3.5	4.9	2.0	3.3	4.7	1.9	1.5	1.5	1.6	1.9	2.0	1.8	1.6	1.9	1.2	1.9	2.3	1.5
Post-secondary certificate or diploma below bachelor level	2.9	1.3	3.2	2.5	1.2	3.1	2.0	1.9	0.0	2.4	1.9	1.9	4.0	2.9	5.6	5.3	5.0	5.7	3.0	2.8	3.6	3.7	3.0	4.6
University certificate, diploma or degree	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.7	0.8	1.4	1.3	1.4	0.3	0.0	0.4	0.9	0.9	1.1
Population aged 25 to 34																								
No certificate, diploma or degree	62.5	62.5	63.1	54.7	55.4	53.7	57.3	54.1	59.7	49	47.3	50.0	55.9	58.3	53.5	41.2	43.4	39.1	58.2	59.0	57.4	46.0	47.3	44.9
High school certificate or equivalent	13.0	9.6	16.5	12.8	9.9	15.4	10.5	11.5	9.7	10.7	12.2	7.9	15.3	15.0	15.7	15.1	14.8	15.3	13.6	12.4	14.9	13.7	13.1	14.4
Apprenticeship or trades certificate or diploma	8.2	13.5	2.9	7.4	12.4	2.4	15.3	23.0	8.1	13.4	18.9	9.2	6.6	10.6	3.2	6.2	10.2	2.7	8.6	13.0	4.3	7.7	12.0	3.5
Post-secondary certificate or diploma below bachelor level	14.9	13.5	15.5	16.9	16.5	17.1	16.9	11.5	19.4	16.1	14.9	17.1	19.2	15.0	23.2	22.4	20.7	26.1	17.2	14.2	20.9	20.4	18.2	22.4
University certificate, diploma or degree	1.4	0.0	1.9	9.1	6.6	11.4	1.6	0.0	3.2	10.7	8.1	14.5	3.0	2.2	3.8	14.1	11.3	16.9	2.3	1.4	3.4	12.2	9.3	14.8
Population aged 35 to 64																								
No certificate, diploma or degree	62.2	58.9	65.7	52.1	47.5	56.3	54.8	50.0	59.1	47.2	42.5	52.3	60.6	57.9	63.1	42.8	39.3	46.8	60.0	56.7	63.0	46.0	42.0	50.2
High school certificate or equivalent	7.7	6.9	8.4	8.9	9.0	8.9	5.6	6.6	3.9	6.3	7.8	5.4	5.7	6.1	5.7	8.9	9.2	8.6	6.3	6.4	6.1	8.5	8.8	8.0
Apprenticeship or trades certificate or diploma	10.8	17.7	3.9	10.6	17.0	4.2	16.1	23.8	9.4	15.6	22.2	8.7	7.8	12.6	3.5	8.3	12.8	3.2	10.3	16.0	4.8	10.2	15.5	4.5
Post-secondary certificate or diploma below bachelor level	17.3	15.4	19.1	18.8	17.0	20.6	20.6	18.0	22.8	21.2	20.3	23.5	21.2	21.0	22.1	24.2	22.8	25.9	20.0	18.7	21.4	22.2	20.9	23.7
University certificate, diploma or degree	2.0	1.1	2.8	9.9	9.4	10.3	2.4	1.6	3.9	9.6	8.5	11.4	4.6	2.9	6.0	15.7	15.6	15.8	3.4	2.1	4.7	13.1	12.7	13.5

Source: Statistics Canada (2007b)

Note – Information for Non-Aboriginals is not available. Non-Aboriginal data cannot be disaggregated from the data provided by Statistics Canada. Due to rounding, the Non-Aboriginal rates cannot be assumed.

Table 9.5-2: Education in Kivalliq Communities, 2006 (%)

	Arviat			Baker Lake			Chesterfield Inlet			Coral Harbour			Rankin Inlet		
	All	M	F	All	M	F	All	M	F	All	M	F	All	M	F
Total population 15 years and over	**1,235**	**615**	**620**	**1,115**	**585**	**530**	**210**	**105**	**110**	**460**	**220**	**235**	**1,565**	**795**	**770**
No certificate, diploma or degree	70.9	70.7	70.2	66.4	64.1	68.9	59.5	57.1	59.1	66.3	63.6	70.2	53.4	52.8	53.9
High school certificate or equivalent	9.3	8.9	9.7	10.3	10.3	10.4	9.5	9.5	9.1	7.6	6.8	6.4	14.4	11.3	17.5
Apprenticeship or trades certificate or diploma	4.0	6.5	1.6	6.7	10.3	2.8	4.8	9.5	0.0	10.9	18.2	4.3	6.7	11.3	1.3
College, CEGEP or other non-university certificate or diploma	8.5	7.3	9.7	10.3	9.4	10.4	19.0	14.3	22.7	8.7	9.1	8.5	13.7	12.6	14.9
University certificate or diploma below the bachelor level	2.0	1.6	1.6	0.0	0.0	0.0	0.0	0.0	0.0	3.3	4.5	4.3	2.9	3.1	2.6
University certificate; diploma or degree	5.7	5.7	6.5	6.3	5.1	7.5	4.8	0.0	9.1	3.3	4.5	4.3	8.9	8.2	9.7
Aboriginal population 15 years and over	**1120**	**555**	**570**	**985**	**510**	**470**	**185**	**90**	**100**	**435**	**215**	**225**	**1,220**	**610**	**610**
No certificate, diploma or degree	76.8	77.5	75.4	72.6	70.6	74.5	64.9	66.7	60.0	69.0	65.1	73.3	66.0	66.4	66.4
High school certificate or equivalent	8.9	7.2	9.7	9.6	9.8	9.6	10.8	0.0	10.0	6.9	7.0	6.7	13.5	9.8	17.2
Apprenticeship or trades certificate or diploma	4.5	7.2	2.6	6.6	9.8	2.1	8.1	11.1	0.0	10.3	18.6	0.0	6.1	9.8	1.6
College, CEGEP or other non-university certificate or diploma	8.5	6.3	9.7	9.6	7.8	10.6	18.9	11.1	25.0	8.0	7.0	8.9	11.5	9.8	13.1
University certificate or diploma below the bachelor level	1.0	0.0	1.8	0.0	0.0	0.0	0.0	0.0	0.0	3.4	0.0	4.4	2.0	2.5	1.6
University certificate; diploma or degree	1.0	0.0	1.8	1.5	0.0	2.1	0.0	0.0	0.0	2.3	0.0	0.0	0.8	1.6	1.6
Total population aged 15 to 24	**405**	**200**	**205**	**330**	**180**	**150**	**60**	**25**	**30**	**155**	**70**	**90**	**425**	**215**	**215**
No certificate, diploma or degree	86.4	87.5	85.4	93.9	94.4	93.3	75.0	80.0	83.3	83.9	85.7	77.8	77.6	81.4	69.8
High school certificate or equivalent	11.1	10.0	12.2	6.1	5.6	6.7	16.7	40.0	33.3	9.7	14.3	11.1	17.6	16.3	20.9
Apprenticeship or trades certificate or diploma	0.0	0.0	0.0	0.0	0.0	0.0	16.7	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0
College, CEGEP or other non-university certificate or diploma	2.5	0.0	4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.7	0.0	7.0
University certificate or diploma below the bachelor level	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
University certificate; diploma or degree	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	0.0	4.7
Aboriginal population aged 15 to 24	**400**	**195**	**205**	**330**	**180**	**150**	**55**	**25**	**30**	**155**	**65**	**85**	**400**	**200**	**200**
No certificate, diploma or degree	86.3	89.7	82.9	95.2	91.4	92.9	81.8	100.0	66.7	83.9	84.6	82.4	80.0	85.0	75.0
High school certificate or equivalent	11.3	10.3	12.2	4.8	0.0	7.1	18.2	0.0	33.3	9.7	15.4	11.8	15.0	15.0	17.5
Apprenticeship or trades certificate or diploma	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
College, CEGEP or other non-university certificate or diploma	2.5	0.0	0.0	3.2	0.0	0.0	0.0	0.0	0.0	6.5	15.4	11.8	3.8	5.0	7.5
University certificate or diploma below the bachelor level	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
University certificate; diploma or degree	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

	Arviat			Baker Lake			Chesterfield Inlet			Coral Harbour			Rankin Inlet		
	All	M	F	All	M	F	All	M	F	All	M	F	All	M	F
Total population aged 25 to 34	**315**	**150**	**160**	**230**	**115**	**120**	**55**	**25**	**30**	**100**	**55**	**50**	**370**	**190**	**175**
No certificate, diploma or degree	60.3	66.7	56.3	63	56.5	66.7	45.5	40	50	50	45.5	50	40.5	44.7	40
High school certificate or equivalent	12.7	10	15.6	8.7	8.7	12.5	0	40	0	10	0	20	18.9	13.2	22.9
Apprenticeship or trades certificate or diploma	4.8	6.7	6.3	8.7	13	0	18.2	40	0	15	27.3	0	5.4	10.5	0
College, CEGEP or other non-university certificate or diploma	12.7	10	12.5	8.7	13	8.3	27.3	0	33.3	10	18.2	20	17.6	18.4	20
University certificate or diploma below the bachelor level	3.2	0	6.3	0	0	0	0	0	0	10	0	0	5.4	7.9	5.7
University certificate; diploma or degree	9.5	10	6.3	8.7	8.7	12.5	0	0	0	0	0	20	10.8	7.9	14.3
Aboriginal population aged 25 to 34	**280**	**135**	**145**	**205**	**100**	**105**	**50**	**20**	**25**	**95**	**50**	**45**	**280**	**145**	**130**
No certificate, diploma or degree	66.1	66.7	65.5	70.7	65.0	76.2	50.0	50.0	40.0	52.6	50.0	44.4	51.8	55.2	50.0
High school certificate or equivalent	12.5	7.4	13.8	9.8	10.0	9.5	0.0	0.0	0.0	10.5	0.0	0.0	19.6	13.8	26.9
Apprenticeship or trades certificate or diploma	3.6	7.4	0.0	9.8	15.0	0.0	0.0	0.0	0.0	15.8	30.0	0.0	7.1	13.8	0.0
College, CEGEP or other non-university certificate or diploma	12.5	11.1	17.2	7.3	10.0	9.5	20.0	50.0	40.0	10.5	0.0	22.2	14.3	13.8	15.4
University certificate or diploma below the bachelor level	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.4	6.9	7.7
University certificate; diploma or degree	0.0	0.0	0.0	4.9	0.0	0.0	20.0	0.0	0.0	10.5	0.0	0.0	0.0	0.0	0.0
Total population aged 35 to 64	**475**	**235**	**235**	**485**	**255**	**225**	**85**	**45**	**45**	**185**	**85**	**95**	**705**	**360**	**345**
No certificate, diploma or degree	62.1	59.6	63.8	46.4	43.1	51.1	58.8	44.4	55.6	56.8	52.9	63.2	41.8	38.9	46.4
High school certificate or equivalent	6.3	8.5	4.3	13.4	15.7	11.1	11.8	0.0	0.0	5.4	0.0	0.0	11.3	8.3	13
Apprenticeship or trades certificate or diploma	7.4	12.8	4.3	10.3	15.7	6.7	0.0	22.2	0.0	13.5	23.5	10.5	12.1	19.4	2.9
College, CEGEP or other non-university certificate or diploma	12.6	12.8	12.8	17.5	15.7	22.2	23.5	22.2	33.3	10.8	11.8	15.8	18.4	16.7	20.3
University certificate or diploma below the bachelor level	3.2	0.0	4.3	2.1	0.0	0.0	0.0	0.0	0.0	8.1	11.8	10.5	2.8	2.8	2.9
University certificate; diploma or degree	8.4	8.5	10.6	9.3	7.8	8.9	11.8	0.0	22.2	5.4	11.8	10.5	13.5	13.9	14.5
Aboriginal population aged 35 to 64	**405**	**200**	**205**	**400**	**205**	**195**	**75**	**35**	**40**	**165**	**80**	**90**	**480**	**230**	**250**
No certificate, diploma or degree	71.6	70.0	73.2	53.8	51.2	53.8	60.0	57.1	62.5	60.6	50.0	66.7	59.4	56.5	62.0
High school certificate or equivalent	4.9	5.0	4.9	13.8	14.6	12.8	0.0	0.0	0.0	6.1	0.0	0.0	9.4	4.3	14.0
Apprenticeship or trades certificate or diploma	8.6	12.5	4.9	10.0	17.1	5.1	13.3	28.6	0.0	15.2	31.3	11.1	11.5	19.6	4.0
College, CEGEP or other non-university certificate or diploma	12.3	10.0	14.6	18.8	17.1	20.5	26.7	0.0	37.5	12.1	12.5	11.1	17.7	15.2	20.0
University certificate or diploma below the bachelor level	0.0	0.0	4.9	2.5	0.0	0.0	0.0	0.0	0.0	6.1	0.0	0.0	0.0	4.3	0.0
University certificate; diploma or degree	2.5	0.0	0.0	0.0	4.9	5.1	0.0	0.0	0.0	0.0	12.5	0.0	2.1	4.3	0.0

	Repulse Bay			Whale Cove			Kivalliq			Nunavut		
	All	M	F	All	M	F	All	M	F	All	M	F
Total population 15 years and over	**450**	**230**	**220**	**210**	**105**	**415**	**5,255**	**2,660**	**2,595**	**19,340**	**9,930**	**9,410**
No certificate, diploma or degree	80.0	78.3	79.5	73.8	76.2	76.2	61.4	63.5	65.7	57.3	56.1	58.6
High school certificate or equivalent	2.2	0.0	4.5	4.8	0.0	9.5	7.7	9.0	11.0	10.9	10.6	11.2
Apprenticeship or trades certificate or diploma	7.8	10.9	4.5	7.1	9.5	0.0	10.9	10.2	2.5	7.0	10.5	3.2
College, CEGEP or other non-university certificate or diploma	5.6	6.5	4.5	9.5	9.5	9.5	12.4	9.8	11.8	14.2	13.1	15.3
University certificate or diploma below the bachelor level	0.0	4.3	0.0	0.0	0.0	0.0	0.7	1.9	1.9	1.6	1.5	1.8
University certificate; diploma or degree	3.3	4.3	4.5	0.0	0.0	0.0	6.7	5.6	7.1	9.0	8.1	10.0
Aboriginal population 15 years and over	**425**	**220**	**205**	**120**	**60**	**60**	**4,570**	**2,290**	**2,280**	**15,510**	**7,785**	**7,720**
No certificate, diploma or degree	83.5	79.5	87.8	62.5	66.7	58.3	3310.0	1645.0	1665.0	68.7	68.2	69.2
High school certificate or equivalent	2.4	4.5	4.9	0.0	0.0	0.0	425.0	180.0	240.0	9.6	9.1	10.0
Apprenticeship or trades certificate or diploma	8.2	11.4	4.9	8.3	16.7	0.0	290.0	230.0	60.0	6.7	10.2	3.4
College, CEGEP or other non-university certificate or diploma	4.7	4.5	4.9	29.2	33.3	25.0	440.0	190.0	255.0	12.1	10.5	13.7
University certificate or diploma below the bachelor level	2.4	4.5	4.9	0.0	0.0	0.0	55.0	30.0	25.0	1.0	1.0	1.0
University certificate; diploma or degree	0.0	0.0	0.0	0.0	0.0	0.0	50.0	15.0	35.0	2.0	1.2	2.8
Total population aged 15 to 24	**175**	**90**	**85**	**70**	**35**	**30**	**1,620**	**815**	**805**	**5,590**	**2,865**	**2,725**
No certificate, diploma or degree	97.1	100.0	100.0	85.7	85.7	100.0	85.8	88.3	83.9	79.9	81.3	78.3
High school certificate or equivalent	0.0	0.0	0.0	0.0	0.0	0.0	10.5	9.2	11.8	13.6	12.6	14.7
Apprenticeship or trades certificate or diploma	0.0	0.0	0.0	0.0	0.0	0.0	0.6	1.2	1.2	1.9	2.3	1.5
College, CEGEP or other non-university certificate or diploma	5.7	11.1	0.0	0.0	0.0	0.0	2.5	1.2	3.1	3.7	3.0	4.2
University certificate or diploma below the bachelor level	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.4
University certificate; diploma or degree	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9	1.1
Aboriginal population aged 15 to 24	**180**	**90**	**85**	**70**	**35**	**35**	**1,560**	**785**	**775**	**5,190**	**2,655**	**2,530**
No certificate, diploma or degree	94.4	94.4	94.1	85.7	85.7	85.7	87.2	89.2	85.2	83.0	84.7	81.4
High school certificate or equivalent	5.6	0.0	11.8	0.0	0.0	0.0	9.9	8.3	11.0	11.9	10.7	13.0

	Repulse Bay			Whale Cove			Kivalliq			Nunavut		
	All	M	F	All	M	F	All	M	F	All	M	F
Apprenticeship or trades certificate or diploma	0.0	0.0	0.0	0.0	0.0	0.0	0.6	1.3	1.3	1.6	1.9	1.2
College, CEGEP or other non-university certificate or diploma	0.0	0.0	0.0	0.0	0.0	0.0	2.2	1.3	3.2	3.0	2.4	3.6
University certificate or diploma below the bachelor level	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.4	0.0
University certificate; diploma or degree	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.4
Total population aged 25 to 34	**100**	**55**	**50**	**45**	**20**	**30**	**1,215**	**605**	**615**	**4,550**	**2,250**	**2,295**
No certificate, diploma or degree	80.0	72.7	80.0	55.6	75.0	33.3	54.7	55.4	53.7	46.0	47.3	44.9
High school certificate or equivalent	0.0	0.0	0.0	0.0	0.0	0.0	12.8	9.9	15.4	13.7	13.1	14.4
Apprenticeship or trades certificate or diploma	10.0	18.2	0.0	22.2	0.0	0.0	7.4	12.4	2.4	7.7	12.0	3.5
College, CEGEP or other non-university certificate or diploma	10.0	0.0	0.0	22.2	0.0	33.3	14.7	13.2	13.8	18.2	16.4	20.0
University certificate or diploma below the bachelor level	10.0	0.0	0.0	0.0	0.0	0.0	2.9	3.3	3.3	2.2	1.8	2.4
University certificate; diploma or degree	10.0	0.0	0.0	22.2	0.0	0.0	9.1	6.6	11.4	12.2	9.3	14.8
Aboriginal population aged 25 to 34	**90**	**50**	**45**	**40**	**15**	**25**	**1,040**	**520**	**515**	**3,480**	**1,730**	**1,750**
No certificate, diploma or degree	83.3	70.0	88.9	62.5	66.7	40.0	62.5	62.5	63.1	58.2	59.0	57.4
High school certificate or equivalent	0.0	20.0	0.0	25.0	0.0	0.0	13.0	9.6	16.5	13.6	12.4	14.9
Apprenticeship or trades certificate or diploma	11.1	20.0	0.0	25.0	0.0	40.0	8.2	13.5	2.9	8.6	13.0	4.3
College, CEGEP or other non-university certificate or diploma	0.0	0.0	0.0	0.0	0.0	40.0	12.5	11.5	13.6	15.9	12.7	19.4
University certificate or diploma below the bachelor level	0.0	0.0	0.0	0.0	0.0	0.0	2.4	1.9	1.9	1.3	1.4	1.4
University certificate; diploma or degree	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	1.9	2.3	1.4	3.4
Total population aged 35 to 64	**160**	**85**	**75**	**90**	**45**	**45**	**2,180**	**1,115**	**1,065**	**8,405**	**4,380**	**4,025**
No certificate, diploma or degree	62.5	58.8	66.7	72.2	66.7	66.7	52.1	47.5	56.3	46.0	42.0	50.2
High school certificate or equivalent	6.3	11.8	0.0	0.0	0.0	0.0	8.9	9.0	8.9	8.5	8.8	8.0
Apprenticeship or trades certificate or diploma	15.6	17.6	0.0	11.1	0.0	22.2	10.6	17.0	4.2	10.2	15.5	4.5
College, CEGEP or other non-university certificate or diploma	12.5	0.0	13.3	11.1	0.0	0.0	16.3	14.8	17.8	19.8	18.6	21.1
University certificate or diploma below the bachelor level	6.3	0.0	0.0	0.0	0.0	0.0	2.5	2.2	2.8	2.4	2.3	2.6
University certificate; diploma or degree	6.3	0.0	0.0	11.1	22.2	0.0	9.9	9.4	10.3	13.1	12.7	13.5
Aboriginal population aged 35 to 64	**145**	**75**	**70**	**85**	**40**	**45**	**1,760**	**875**	**890**	**6,135**	**3,025**	**3,110**
No certificate, diploma or degree	65.5	60.0	71.4	70.6	75.0	66.7	62.2	58.9	65.7	60.0	56.7	63.0
High school certificate or equivalent	0.0	0.0	0.0	0.0	0.0	0.0	7.7	6.9	8.4	6.3	6.4	6.1

	Repulse Bay			Whale Cove			Kivalliq			Nunavut		
	All	M	F	All	M	F	All	M	F	All	M	F
Apprenticeship or trades certificate or diploma	17.2	20.0	14.3	11.8	0.0	0.0	10.8	17.7	3.9	10.3	16.0	4.8
College, CEGEP or other non-university certificate or diploma	6.9	13.3	0.0	11.8	0.0	0.0	15.6	13.1	18.0	18.5	17.0	19.9
University certificate or diploma below the bachelor level	0.0	0.0	0.0	11.8	0.0	0.0	1.7	2.3	1.1	1.5	1.7	1.4
University certificate; diploma or degree	6.9	0.0	0.0	0.0	0.0	0.0	2.0	1.1	2.8	3.4	2.1	4.7

Sources: Statistics Canada (2007b)

Note: Shaded areas represent LSA community data; M = males; F = females

Information for Non-Aboriginals is not available. Non-Aboriginal data cannot be disaggregated from the data provided by Statistics Canada. Due to rounding, the Non-Aboriginal rates cannot be assumed.

Interested Party:	Kivalliq Inuit Association (KIA)	Rec No.:	KIA-IR-35
Re:	Socio-Economic Environment and Impact Assessment – School Demographics		

Reference to FEIS: Volume 1, Appendix 1.0-A; Volume 9, Socio-Economic Environment and Impact Assessment

Recommendation made by Interested Party:

Please provide data on the number of secondary school graduates by community, region.

AEM's Response to Recommendation:

Total school capacity, utilization rates, and high school graduation rates by school and community are provided in FEIS Volume 9, Table 9.7-3 (page 9-279): K-12 Educational Institutions in Kivalliq, Capacity and Graduation Rates (2013 / 2014). For ease of reference, Table 9.7-3 is copied below. The approximate number of students graduating in the reported year can be inferred from this information.

Table 9.7-3: K-12 Educational Institutions in Kivalliq, Capacity and Graduation Rates (2013 / 2014)

Community	Grade	• School Name	Total Capacity	• Utilization (% Capacity)	• Attendance Rate (%)	Graduation Rate (% of Grade 12 Students)
Arviat	K-5	Levi Angmak Elementary School	390	83%	70.1%	n/a
Arviat	6-8	Qitiqliq Middle School	187	95%	55.4%	n/a
Arviat	7-12	John Arnalukjuak High School	422	89%	69.6%	59.6%
Baker Lake	K-5	Rachel Arngnammaktiq Elementary School	313	69%	81.4%	n/a
Baker Lake	6-12	Jonah Amitnaaq Secondary School	382	92%	68.7%	57.1%
Chesterfield Inlet	K-12	Victor Sammurtok School	157	68%	70.2%	55.6%
Coral Harbour	K-12	Sakku School	335	83%	69.8%	26.1%
Rankin Inlet	K-4	Leo Ussak Elementary School	346	75%	84.2%	n/a
Rankin Inlet	5-6	Simon Alaittuq School	176	51%	89.4%	n/a
Rankin Inlet	7-12	Maani Ulujuk Ilinniarvik	442	77%	74.1%	58.2%
Repulse Bay	K-12	Tusarvik School	263	141%	79.6%	41.7%
Whale Cove	K-12	Inuglak School	187	76%	89.2%	46.2%

Source: Natara, C., 2014 pers. comm.; Cooper, B., 2014 pers. comm. (see FEIS Volume 9 for reference details)

Interested Party:	Kivalliq Inuit Association (KIA)	Rec No.:	KIA-IR-36
Re:	Socio-Economic Environment and Impact Assessment – Available Training		

Reference to FEIS: Volume 1, Appendix 1.0-A; Volume 9, Socio-Economic Environment and Impact Assessment

Recommendation made by Interested Party:

Provide information on the available training programs for adults and youth through the existing education system within the Kivalliq Region.

AEM's Response to Recommendation:

This information is provided in Volume 9 of the FEIS. The locations of specific information are noted in the following table:

Section	Page	Discussion of Available Training
9.4.1.2	9-134/135	Nunavut Arctic College's (NAC) diamond driller training program.
	9-137	Noted that there are two NAC campuses in Rankin Inlet, offering primarily trades courses.
9.5.1.2	9-200	Secondary schools are available in all LSA communities and teach the Alberta curriculum to youth.
	9-208	The high school in Chesterfield Inlet has building maintenance and safety training programs for youth. It is also noted on this page that there is a new technical school in Rankin Inlet.
	9-209	Noted that there are NAC learning centres in all communities in the LSA, with the exception of Rankin Inlet, which has two full service campuses. It is also noted on this page that the NAC offers nursing and education programs that can be completed in Nunavut.
9.5.3	9-212	Noted that the mine training society is designed to prepare people for a career in mining.
9.5.3.3.1	9-216	Discusses the role of the Mine Training Society in the provision of advanced training for adults and youth interested in mine employment.

Interested Party:	Kivalliq Inuit Association (KIA)	Rec No.:	KIA-IR-37
Re:	Socio-Economic Environment and Impact Assessment – Affect to Other Community Infrastructure and Services		

Reference to FEIS: Volume 1, Appendix 1.0-A; Volume 9, Socio-Economic Environment and Impact Assessment

Recommendation made by Interested Party:

To be consistent with the level of analysis provided in relation to Community infrastructure, please provide detailed analysis for each component of the community infrastructure (and not aggregate them in one table).

AEM's Response to Recommendation:

The approach to the "Other Community and Infrastructure and Services" assessment provided in the FEIS Volume 9, Addendum 9.1 was to consider broader categories of infrastructure (e.g., waste, fuel storage, etc.), as opposed to assessing individual components of a category (e.g., the individual generators and tank farms that compose the category of "fuel storage"). Where an entire broad category is considered to be overburdened and mitigation was not considered sufficient to remove the potential effect, the category was considered in the residual effects assessment. Effects to individual categories of "Other Community Infrastructure and Services" are broken out and provided below.

Effects Analysis

Given the already overburdened water, sewage treatment, community freezer services, and infrastructure in the local study area (LSA), Project-induced population growth could increase demand for and pressure these infrastructure and services. Further, while most fuel storage tanks are not in danger of exceeding capacity, the diesel tank farm in Rankin Inlet is predicted to be over-capacity, and susceptible to capacity pressure in the event of Project-induced in-migration to the hamlet. Given their current capacity, power (generators), search and rescue, fire protection, and solid waste collection are not expected to be affected by the Project, and so are not carried forward into the residual effects analysis.

Residual Impact Classification

The effect of the Project on other community infrastructure and services in the LSA is considered to be negative, due to the increased demand for and pressure on existing services that are already experiencing capacity issues, particularly water, sewage treatment, the community freezer and fuel storage. However, given that the Project will pay taxes to the municipality that could be used to improve this infrastructure, the magnitude of the effect, or issue, can be reduced; thus, the effect is negative, but low magnitude. The effect will persist throughout Project construction, operations and closure, and has thus been assessed as long-term in duration.

Due to the low negative impact of this effect, the Project's effect on other community infrastructure and services is considered significant. Table A provides a breakdown of residual effects by key component.

Table A: Residual Impact Classification Summary for Other Infrastructure and Services

VSEC	Key Component	Effect Pathway	Direction	Magnitude	Geographic Extent	Duration	Significance
Other Community Infrastructure and Services	Water Infrastructure	Project-induced in-migration may increase demand on Other Community Infrastructure and Services	Negative	Low	Local	Long-term	Significant
	Sewage Treatment		Negative	Low	Local	Long-term	Significant
	Community Freezer		Negative	Low	Local	Long-term	Significant
	Fuel Storage		Negative	Low	Local	Long-term	Significant

Interested Party:	Kivalliq Inuit Association (KIA)	Rec No.:	KIA-IR-NEW-01
Re:	Lack of clarity on population persistence and determination of significance		

Reference to FEIS: Vol. 4, Section 4.5.5 Residual Impact Classification and Significance

Recommendation made by Interested Party:

'Persistence' is still used as a metric for significance determination for vegetation (p 6-148), some wildlife health (6-187-188) and dust (p 6-191), and bird (p 6-308, 301, 312, etc.) endpoints. Even sections a few lines apart are inconsistent (p 6-375, where it states definitions are used for assessing significance of impacts on the persistence of birds, but then provides significance relative to risk to population maintenance. Not only does this reveal at poor 'cut and paste' editing, but suggests that the assessment methods and conclusions did not differ regardless which words were used.

The KIA requests that AEM commit to, or NIRB require AEM to clarify both the wording and assessment methodology associated with these terms.

AEM's Response to Recommendation:

The KIA requests that AEM commit to, or NIRB require AEM to clarify both the wording and assessment methodology associated with these terms.

In KIA-NEW-01, the KIA identified a concern related to the use of the word persistence. AEM agrees "persistence" does not accurately reflect the factors used to determine environmental significance. The assessment end points for vegetation and wildlife were the maintenance of abundance and distribution of populations and the continued opportunity for traditional and non-traditional land use (Volume 4, Table 4.2-1). The residual impact classification took into account the magnitude of the impacts (i.e. the amount of change from the baseline condition, see Volume 6, Table 6.6-29).

Quantitative and qualitative key factors were considered in the determination of environmental significance as follows:

- results from the residual impact classification of primary pathways;
- magnitude, geographic extent, and duration (which includes reversibility) of the impact were the principal criteria used, with frequency and likelihood as modifiers;
- professional judgment and ecological principles, such as resilience, were used to predict the duration and associated reversibility of impacts;
- ecological or socio-economic context/value;
- historical, cultural, and archaeological significance of the geographic area likely to be affected by the Project;

- value attached to the individual VEC based on consultation with potentially affected communities; and
- relevant individuals and organizations.

Persistence was not a key factor in assessing environmental significance; however the maintenance of population abundance in terms of magnitude of change relative baseline was a key factor. As stated above, the continued opportunity for traditional and non-traditional was also an assessment endpoint. **Therefore, changing the wording in the FEIS from persistence to maintenance did not change the conclusions in the FEIS**.

While it is agreed the incidences where persistence are used are inappropriate, these occurrences do not change the assessed significance of the effects due to the assessment endpoints used in the FEIS. Therefore, AEM is not proposing to update and resubmit the FEIS to correct for these occurrences. AEM agrees that persistence is not an appropriate metric and agrees the maintenance of abundance and distribution of populations is more appropriate. However, as described above, persistence was not used as an assessment endpoint to assess significance.

Maintenance of abundance and distribution of populations was considered an appropriate and conservative assessment endpoint in the FEIS for determining the significance of incremental and cumulative effects from the Project and other developments on wildlife and vegetation VECs. Predicting if the Project is likely to have a significant effect on the maintenance of population abundance and distribution is similar to asking if the Project will adversely affect the persistence of self-sustaining and ecologically effective VECs. As stated by the KIA in their review of the DEIS, the use of maintenance of abundance and distribution as an assessment endpoint was presumed to be more intuitive in terms of long-term sustainable populations that are ecologically functional and provide continued opportunities for traditional and non-traditional use of wildlife for future human generations.

Self-sustaining populations are healthy populations capable of withstanding environmental change and accommodating stochastic ecological and demographic processes (e.g., changes in population caused by unpredictable phenomenon such as several dry summers, or an exceptionally cold winter). Thus, a self-sustaining population is one that will be present (or persistent) for many generations.

For wildlife VECs that have strong effects on ecosystem structure and function, the concept of ecologically effective populations is also included in the assessment endpoint. Population sizes required to maintain a viable and self-sustaining population may not be sufficient to achieve ecological function for some highly interactive species (Soule et al. 2005). Highly interactive species are those for which changes in abundance and distribution can have strong effects to other species (e.g., prey for predators) in an ecosystem (Soule et al. 2003). In addition, maintenance of ecologically effective populations over many generations generally results in the protection of the ecological services from which humans benefit when ecosystems are functional, such as the continued opportunity for consumptive and non-

consumptive use of wildlife by people that value these resources as part of their culture and livelihood (Hooper et al. 2005).

Resilience and stability are key properties of self-sustaining and ecologically effective populations. Resilience is an inherent trait of a species or a population, and represents the ability of a population to recover or bounce back from a disturbance (e.g., rate and degree of fluctuation in population abundance and distribution after a disturbance). Resilience can vary with population size and stability. During periods of low abundance, animal and plant populations can become less resilient to natural environmental and human-related disturbances, which may reduce stability (i.e., trajectory of the population). Stable populations exhibit no long-term increasing or declining trend in abundance outside of natural fluctuations and cycles (e.g., predator-prey cycles). Resilience and stability are properties of a population that influence the risk to the maintenance of abundance and distribution (likelihood of persistence) of VECs from development (Weaver et al. 1996).

An assessment endpoint is used to determine whether the abundance and distribution of populations will be maintained into the future. However, it is important to point out that measurement endpoints are used to evaluate the assessment endpoint. For example, the following measurement endpoints were applied in the wildlife assessment:

- habitat quantity and quality;
- habitat connectivity;
- survival and reproduction; and
- movement and behaviour.

These measurement endpoints provide the necessary information to understand how the assessment endpoint was evaluated and how ecological significance was determined in the wildlife assessment. Changes in these measurement endpoints due to the Project and other development have equivalent predicted residual effects on the maintenance of population abundance and distribution or the persistence of self-sustaining and ecologically effective populations.

Thus, the assessment endpoint is used to evaluate whether the abundance and distribution (i.e., self-sustaining and ecologically effective populations) of wildlife VECs will be maintained (or persist) into the future. The FEIS used the calculated and predicted changes in measurement endpoints to determine the significance of effects on the assessment endpoint. By focusing the assessment on effects to the maintenance of abundance and distribution of populations, the FEIS also evaluated the impacts from the Project on the availability of animals for the continued opportunity for traditional and non-traditional use of wildlife (sustainability of the population for harvesting).

Literature Cited:

Hooper, D.U., F.S. Chapin, J.J. Ewel, A. Hector, P. Inchausti, S. Lavorel, J.H. Lawton, D.M. Lodge, M. Loreau, S. Naeem. B Schmid, H. Setala, A.J. Smstad, J. Vandermeer and D.A. Wardle. 2005. *Effects of biodiversity on ecosystem functioning: a consensus of current knowledge*. Ecological Monographs 75:3-35.

Soule, M.E., J.A. Estes, J. Berger, and C.M. Del Rio. 2003. *Ecological effectiveness: Conservation goals for interactive species*. Conservation Biology 17:1238-1250.

Soule, M.E., J.A. Estes, B. Miller, and D.L. Honnold. 2005. *Strongly interacting species:conservation policy, management, and ethics*. BioScience 55:168-176.

Weaver, J.L., P.C. Paquet and L.F. Ruggiero. 1996. *Resilience and conservation of large carnivores in the Rocky Mountains.* Conservation Biology 10: 964-976.

Interested Party:	Kivalliq Inuit Association (KIA)	Rec No.:	KIA-IR-NEW-09
Re:	Methodology for calculation of water quality summary statistics		

Reference to FEIS: SD 7-1, Volume 7, Section 7.4.4.3.3 (page 7-257 and 7-258), Volume 7, Section 7.4.4.3.4 (pages 7-258 to 7-260), Volume 7, Section 7.4.6.1.1 (pages 7-294 and 7-295), Volume 7, Section 7.4.6.2 (pages 7-300 to 7-313), Volume 7, Section 7.4.7 (pages 7-315 to 7-318).

Recommendation made by Interested Party:

AEM should clearly define how means have been calculated when producing summary statistics of baseline data. Medians are preferred as a measure of central tendency as they are less impacted by varying detection limits and outliers.

Data points are greater than the median ± 1.5 × the interquartile range should be examined closely before inclusion in calculations of central tendency.

AEM should also clearly define what is meant by "differing from the baseline".

AEM's Response to Recommendation:

Means were calculated using all available data; where results were less than the detection limit, half the detection limit was used. Depending upon the dataset, means can be as useful as medians.

The baseline data will be carried forward into the preliminary aquatic effects monitoring plan (AEMP) design, at which time the dataset will be re-evaluated and statistics re-calculated, if necessary.

For purposes of the FEIS, "differing from baseline" was defined as more than 10% higher than the maximum observed value.

For the purposes of future monitoring programs, the term "differing from baseline" will be revisited and defined at that time.

Interested Party:	**Kivalliq Inuit Association (KIA)**	**Rec No.:**	**KIA-IR-NEW-13**
Re:	**Site-specific water quality objective for copper in Tiriganiaq Pit Lake**		

Reference to FEIS: Volume 7, Section 7.5.6.2.4, pages 7-449 and 7-450 *(referenced in the IR as Section 7.5.6.4.2, but this section does not exist)*.

Recommendation made by Interested Party:

Given AEM's assertions regarding copper in the Tiriganiaq Pit Lake post closure, a site specific water quality objective should be calculated for copper using a CCME approved procedure.

AEM's Response to Recommendation:

Post-closure water quality in the Tiriganiaq Pit Lake has been estimated from a model (SD 2-6, Appendix C-2, Table C-2.5, pages 53 to 56 of 94). The estimated summer average is 2.8 µg/L, which is above the CCME guideline for protection of aquatic life (2 µg/L) if hardness is unknown. The guideline value increases to 3.91 µg/L for hardness of 180 mg/L (CCME 1999).

Predicted water quality in the pit lake will be updated through mining operations. The certainty of the model predictions will increase as more monitoring data (e.g., seepage quality and quantity, wasterock characterization) are gathered throughout mining.

Based on the above, development of a site-specific water quality objective (SSWQO) for copper is not proposed at this time. If necessary, this option will be re-evaluated during future phases of closure planning and aquatic effects monitoring.

Reference:
CCME (Canadian Council of Ministers of the Environment). 1999, with updates to 2014. Canadian Environmental Quality Guidelines. Winnipeg, MB, Canada.

Interested Party:	**Nunavut Tunngavik Inc. (NTI) & Kivalliq Inuit Association (KIA)**	**Rec No.:**	**KIA-IR-NEW-14**
Re:	**SD 9-2 Socio-Economic Management Plan – Regularity of Review**		

Reference to FEIS: SD 9-2 Socio-economic Management Plan: Executive Summary (page i)

Recommendation Made By Interested Party:

SD 9-2 Socio-economic Management Plan: Executive Summary (page i) - Please indicate how often the plan will be reviewed.

AEM's Response to Recommendation:

AEM plans to review and revise the Socio-Economic Management Plan after the Meliadine IIBA has been finalized and signed, at which time the Plan would be updated to be consistent with the commitments made under the terms and conditions of the IIBA. At the same time, the plan would be adjusted/modified as necessary to incorporate terms/conditions contained within the Project Certificate, as appropriate (assuming such a Project Certificate is granted – AEM's estimation is sometime in late 2015). The Plan would also be reviewed/revised again approximately 6 months before the start of commercial production (AEM assumes this will be sometime in 2018). Once the mine is in full commercial production, AEM believes that this Plan will start to lose value as a management tool, being replaced by the Implementation Committee structures envisioned under the IIBA and by the monitoring/mitigation initiatives conducted under the IIBA, the Kivalliq Socio-Economic Monitoring committee and under the Terms and Conditions contained in the NIRB Project Certificate. The Socio-Economic Management Plan will become a component of the AEM Meliadine Environmental Management System documentation, and as such, will be reviewed at least every two years or earlier if some significant change affecting the Plan occurs.

Interested Party:	**Nunavut Tunngavik Inc. (NTI) & Kivalliq Inuit Association (KIA)**	**Rec No.:**	**KIA-IR-NEW-15**
Re:	**SD 9-2 Socio-Economic Management Plan – Education & Training**		

Reference to FEIS: SD 9-2 Socio-economic Management Plan: Section 4.3 Education and Training.

Recommendation Made By Interested Party:

SD 9-2 Socio-economic Management Plan: Section 4.3 Education and Training (page 13): "Based on the success of this initiative, AEM intends to extend…" - When all the other measures are set as final, why this one is "intended"? Please explain.

AEM's Response to Recommendation:

These initiatives all depend upon AEM successfully partnering with other Government and community based groups, such as the community schools and the GN Department of Education. AEM cannot deliver these initiatives on its own. This section of the Socio- Economic Management Plan provides AEM's intention to continue these partnerships, but we cannot speak for the GN Department of Education or for the local schools on their willingness to continue and/or extend these initiatives, hence the wording used.

Interested Party:	**Nunavut Tunngavik Inc. (NTI) & Kivalliq Inuit Association (KIA)**	**Rec No.:**	**KIA-IR-NEW-16**
Re:	**SD 9-2 Socio-Economic Management Plan – Effects on Well Being**		

Reference to FEIS: SD 9-2 Socio-economic Management Plan, Section 4.5 Effects on Well Being.

Recommendation Made By Interested Party:

SD 9-2 Socio-economic Management Plan: Section 4.5 Effects on Well Being (page 15): "AEM intends to provide similar programs…" - When all the other measures are set as final, why this one is "intended"? Please explain.

AEM's Response to Recommendation:

The programs referenced in this section have all been developed and implemented at AEM's Meadowbank Mine. These programs are directed towards helping our Inuit employees adjust and thrive within the mine workplace environment. AEM has stated that it intends to duplicate these programs at the Meliadine Mine, should the Project be allowed to proceed. However these programs are not static. They evolve over time and tend to be adjusted, improved and in some cases replaced as we jointly learn with our partners (i.e., our Inuit employees, the KIA) what is working and what is not. Consequently we expect that between now (2014) and the expected start of production at Meliadine (2018), these programs will continue to evolve/grow/change to meet their objectives, hence the wording used.

Interested Party:	Nunavut Tunngavik Inc. (NTI) & Kivalliq Inuit Association (KIA)	Rec No.:	KIA-IR-NEW-17
Re:	SD 9-2 Socio-Economic Management Plan – Community Contributions		

Reference to FEIS: SD 9-2 Socio-economic Management Plan, Section 4.7 Community Contributions

Recommendation Made By Interested Party:

SD 9-2 Socio-economic Management Plan: Section 4.7 Community contributions (page 18)- "AEM would expect to continue to respond…" - Why "expect" - Please explain / clarify.

AEM's Response to Recommendation:

AEM's ability to provide community contributions is a function of its economic health, which is greatly dependent upon the prevailing price of gold in any given year. AEM is committed to continue providing support to worthy community initiatives, where it can, and where such initiatives are in line with the company's beliefs and principles. AEM cannot guarantee its economic well-being for any given year, just as it cannot predict what price it will receive for the gold it produces. Hence, we cannot guarantee our ability to contribute in any given year; however, we do expect to contribute when our economic well-being allows, and see this as part of our social responsibility to the communities in which we operate.

Interested Party:	**Nunavut Tunngavik Inc. (NTI) & Kivalliq Inuit Association (KIA)**	**Rec No.:**	**KIA-IR-NEW-18**
Re:	**SD 9-3 Business Development Plan – LSA Defined as 3 Communities**		

Reference to FEIS: SD 9-3 Business Development Plan, Section 1.3.2 Local Hiring / Business Area (page 2)

Recommendation Made By Interested Party:

SD 9-3 Business Development Plan Section 1.3.2 Local hiring / Business area. The LSA in here is defined as three communities. Why is this different from the initial LSA (with five communities)? Please explain / clarify.

AEM's Response to Recommendation:

This is an error that should have been caught by AEM. The Business Development Plan, as a management plan, should not be tied to a study area. For hiring, the IIBA currently being negotiated with the KIA provides for first preference for Inuit Beneficiaries coming from the two "affected communities" of Rankin Inlet and Chesterfield Inlet, followed by Inuit Beneficiaries from the other five Kivalliq Communities. For business, specifically contracting opportunities, the IIBA provides preference points for Inuit Firms (i.e. NTI Inuit Firm Registry firms) where some of the preference points are allocated based upon the community where the firm is located and operates. This Plan will have to be updated once the Meliadine IIBA is finalized and signed to fully concur with the agreed upon IIBA terms and conditions.

Interested Party:	**Nunavut Tunngavik Inc. (NTI) & Kivalliq Inuit Association (KIA)**	**Rec No.:**	**KIA-IR-NEW-19**
Re:	**SD 9-4 Human Resources Plan – Career Path Program**		

Reference to FEIS: SD 9-4 Human Resources Plan, Section 2.4 Career Path Program

Recommendation Made By Interested Party:

SD 9-4 Human Resources Plan: Section 2.4 Career Path Program - The program is explained for the Meadowbank project, but it is not clear if it will be an option for the Meliadine project. Please clarify.

AEM's Response to Recommendation:

AEM intends to transfer the Meadowbank Career Path Program to its Meliadine operation for the Operational Phase of the Meliadine Project. This has been discussed with the KIA as part of our ongoing IIBA negotiations. The actual program put in place at Meliadine will be adjusted/modified to meet the agreed upon terms and conditions contained in the final IIBA as necessary. It should also be recognized that this program will continue to evolve and be improved on; the program moved to Meliadine will reflect these improvements/refinements.

Interested Party:	**Nunavut Tunngavik Inc. (NTI) & Kivalliq Inuit Association (KIA)**	**Rec No.:**	**KIA-IR-NEW-20**
Re:	**SD 9-5 Community Involvement Plan – Community Liaison Representatives**		

Reference to FEIS: SD 9-5 Community Involvement Plan, Section 3.5 Community Liaison Representatives

Recommendation Made By Interested Party:

SD 9-5 Community Involvement Plan Section 3.5 Community Liaison Representatives (page 11) - "AEM plans to continue this arrangement…" Can this be as affirmative as other measures?

AEM's Response to Recommendation:

The Community Liaison Representative Program has been very successful in some Kivalliq communities, but not in others. Not all of the communities have had the ability or capacity to make this initiative a success. The extension of this existing program to the Meliadine Project is currently part of the ongoing negotiation between AEM and the KIA, as part of the Meliadine IIBA negotiating process. The intent is to continue such a program for the Meliadine Project, especially in those communities where our employee base is large enough to make such a program worthwhile. The actual wording contained in the Community Involvement Plan will be adjusted to comply with the terms and conditions of the IIBA once it is finalized.

Interested Party:	Kivalliq Inuit Association (KIA)	REC No.:	KIA-IR-NEW-21
Re:	Limited scope of cumulative effects assessment on caribou		

FEIS Reference: Volume 6 Terrestrial Environment and Impact Assessment, Section 6.6 pages 6-153 to 6-258).

Recommendation made by Interested Party:

The KIA requests that AEM commit to, or NIRB require AEM to:
1. Identify the lack of representation of the collar data and the limitations from sample design (related to this point, the Proponent should ensure that maps of collar distribution or seasonal ranges include the years that the ranges represent);
2. Comment on accepting a definition of non-migratory for the Lorillard herd while discussing seasonal ranges in the context of predicting effects;
3. Explain how changes in the CESA influences effects predictions and uncertainty;
4. Conduct an energetics/population modelling cumulative assessment for the Project to estimate energetic costs and effects on calf survival as estimated for other mine projects (e.g., Baffinland, Fortune Nico and De Beers Gahcho Kué).

AEM's Response to Recommendation:
AEM provides the following in response to KIA's recommendations in order of their presentation above:

1. The CESA is based on GN telemetry data for the Qamanirjuaq herd only. Data for the Lorillard herd was only used to identify the Lorillard seasonal home ranges. The Qamanirjuaq herd data include collar locations for females from 1998, 2000, 2001, 2006, 2007, 2008, and 2011. Locations from all collars in all years were included in the deliminiation of the CESA boundary to ensure representation of caribou locations across time and space. For this reason, no bias is expected as a result of a variable number of collars being active in different years. Therefore, AEM is not proposing to update the seasonal range,density, or movement maps presented in Volume 6 of the FEIS (Figures 6.6-2 to 6.6-5 (pages 6-162 to 6-165) and Figures 6.6-8 to 6.6-13 (pages 6-227 to 6-233).

2. Migratory caribou have seasonal ranges that do not overlap and they travel great distances (thousands of kilometres) between seasonal ranges (Yetman 2010). Non-migratory caribou can, and do have seasonal ranges that are in closer proximity to each other. The differences between the Qamanirjuac and Lorillard herd seasonal ranges can be seen in Figures 6.6-2 to 6.6-5 on pages 6-162 to 6-165 (FEIS Volume 6). Based on the best available data on seasonal ranges of the Lorillard herd, there is no reason to expect the Project will affect this caribou herd.

3. As described in FEIS Recommendation response KIA-IR-15, the 85%, rather than the 95%, volume contour of the post-calving range was used to define the CESA to avoid diluting effects measured as a percent of the area of the CESA, while also ensuring the majority of caribou locations in time and space were included within the boundary. If the CESA were based on the annual range, it

would likely dilute the effects reported in Tables 6.6-21 and 6.6-26 (Volume 6, pages 6-214, 6-223 and 6-224), given the increase in area of the annual range (Volume 6, Figure 6.6-4 and 6.6-5, pages 6-164 and 6-165) compared to the number of developments. For example, based on the calculations of footprint sizes used for estimating direct habitat loss (Volume 6, Table 6.6-17, page 6-207), a mine development footprint would be approximately 79 ha. If an increase in the size of the CESA encompassed one additional mine development, and the CESA increased in size by more than 79 ha, the estimated total percent habitat loss would decrease.

4. Recommendation 4 is subject to further consideration at the Final Hearing.

Reference:

Yetman, G. Our Wildlife, News from the Wildlife Division: Two distinctive caribou types share Labrador's landscape. Department of Environment & Conservation, Wildlfie Division. Government of Newfoundland and Labrador. Available at: http://www.env.gov.nl.ca/env/publications/wildlife/our_wildlife_spring2010.pdf. Accessed August 1, 2014.

Interested Party:	Government of Northwest Territories (GNWT)	Rec No.:	GNWT-d
Re:	AWAR increasing access to caribou calving grounds		

Reference to FEIS: Volume 6, Section 6.6.9, page 6-246 and Section 6.6.4.3 –Survival and Reproduction (pages 6-234 to 6-236).

Recommendation made by Interested Party:

d) GNWT recommends that the harvest study areas identified in the TEMMP Appendix 1 (Harvest calendar) be extended further west to capture potential changes in access to the post-calving and calving ranges of the herd.

AEM's Response to Recommendation:

Calving areas are outside the Project area to the west, and access from Rankin Inlet is as easy as from the road. Having AEM monitor areas outside their Project is not justified, and AEM does not feel this should be part of their commitment. The intent of the harvest study is to document any increase in harvesting efficiency associated with the Project (i.e., the development of the AWAR), and this is deemed sufficient for the Project impact assessment.

Interested Party:	Government of Nunavut (GN)	Rec No.:	GN 6
Re:	Socio-Economic Environment and Impact Assessment – Updated Iqalugaarjuup Nunanga Territorial Park Information		

Reference to FEIS: Volume 9 Socio-Economic Environment and Impact Assessment, Section 9.9.1.3, page 9-306 to 9-309.

Recommendation made by Interested Party:

As requested during the technical comments phase, the GN requests that the Proponent obtain accurate information regarding Iqalugaarjuup Nunanga Territorial Park from Nunavut Parks in an effort to maintain consistency and accuracy.

AEM's Response to Recommendation:

The referenced paragraph from Volume 9, Section 9.9.1.3 of the FEIS has been updated below based on discussions with Lesli Rynyk, Coordinator for the Department of Parks: Planning and Operations (Kivalliq Region).

"The Iqalugaarjuup Nunanga Territorial Park is located 8 km northwest of Rankin Inlet (Government of Nunavut, Department of the Environment 2008). In the summer months, the Park is used by visitors and residents of Rankin Inlet for fishing, wildlife viewing, hiking, camping, and berry picking (Government of Nunavut, Department of Environment 2008). The park can be accessed via a gravel road from Rankin Inlet. While no local outfitters are currently licensed to operate in the park (Rynyk 2014, pers. comm.), they have offered cultural experience tours of the park features in the past. Off-road driving of any kind is not permitted, but ATVs are permitted in the park on authorized roads and trails only. Non-Inuit are required to hold a fishing licence to fish in the park. Licences can be obtained from the wildlife office in Rankin Inlet. The park acts as a preservation area for wildlife and plant communities, providing habitat for numerous unusual species, including the peregrine falcon which is currently listed as a species of Special Concern (Species at Risk, Government of Canada 2014)(Nunavut Parks n.d.; Rynyk 2014, pers. comm.). Roads and pathways in Iqalugaarjuup Nunanga Territorial Park maintain the ecological integrity of the sensitive lichen-moss communities that cover much of the park's esker formations. Visitors are discouraged from disturbing the natural environment within the park in any fashion. There is a picnic area and change room in the park near Sandy Lake – a popular summer swimming area. There is also a rentable pavilion available for day-use by the public (Rynyk 2014, pers. comm.), as well as a tent camping area near the pavilion. The park holds at least 45 archaeological sites, the most prominent of which is named Qamaviniqtalik or "place with ancient sod houses". Visitors can see remnants of tent rings, caches, graves and semi-subterranean houses built into the hillside (Ayaya Marketing and Communications 2004)."

Additional References

Nunavut Parks. n.d.Iqalugaarjuup Nunanga Territorial Park, Overview. Available at: http://nunavutparks.ca/english/parks-special-places/iqalugaarjuup-nunanga-territorial-park/overview.aspx. Accessed July, 2014.

Rynyk, L. 2014. Nunavut Parks. Personal Communication with J. McCallum (Golder) on July 29, 2014.

Government of Canada. 2014. Species at Risk Registry. Available at: http://www.sararegistry.gc.ca/sar/index/default_e.cfm. Accessed August 2014.

Interested Party:	Government of Nunavut (GN)	Rec No.:	GN 19
Re:	Surface Water Screening		

Reference to FEIS: Volume 10, Table 10.2-E-1 (Appendix 10.2-E) and Volume 7, Table 7.4-20 (page 7-299)

Recommendation made by Interested Party:
The GN requests that:

a) AEM update table 10.2-E-1 to clarify:

- *what the predicted concentrations represent (maximum, upper estimate, average)*
- *where they occur (edge of mixing zone, within Meliadine Lake)*
- *whether they reflect the total or dissolved concentration*
- *whether the predicted concentration includes baseline or is incremental*

b) AEM update the Baseline Concentration column in table 10.2-1 to reflect a more appropriate measure of baseline concentrations for the purpose of screening.

c) Given that the country food pathways are screened out of the risk assessment, and that members of the public, including workers, may use Meliadine Lake for both drinking water and fishing, the GN requests that AEM adjust its COPC screening threshold to account for this possibility. One appropriate way of doing this would be comparing to a specified fraction of the drinking water guidelines.

d) The Proponent's far-field modeling shows concentrations of TDS, chloride and sodium increasing above their respective predicted edge-of-mixing-zone concentrations. However, many other chemicals of interest were excluded from this far-field modeling. In the absence of additional information about how chemicals will accumulate in Meliadine Lake, or rationale for excluding them from far-field modeling, AEM has not demonstrated that chemicals screened out of the risk assessment will not exceed relevant guidelines over the course of the Project life. The GN requests that AEM provide additional far-field modeling in response to this concern.

e) As the requests outlined above (a–d) likely cannot all be responded to before the NIRB Final Hearing, the GN expects these issues that cannot be dealt with before the Final Hearing be resolved through AEM's Water License Application.

AEM's Response to Recommendation:

AEM acknowledges the comments made by the GN. In our opinion, all of these issues should be deferred and addressed during the water licensing process, should this Project receive authorization to proceed into permitting.

In our opinion, AEM has demonstrated in its FEIS that all Project wastewater can be managed, treated and discharged in a manner that will not detrimentally alter the downstream receiving environment. Consequently, continued use of water in Meliadine Lake and its downstream watershed will not harm people, wildlife or fish who rely upon these waters.

AEM acknowledges that additional design and analysis may be required during the water licensing phase to establish acceptable discharge parameters and discharge methodologies, and confirm that appropriate monitoring and regulatory controls are in place to ensure that the proposed mine operates within such parameters.

Interested Party:	Government of Nunavut (GN)	Rec No.:	GN-20
Re:	Addition of air quality monitoring parameters		

Reference to FEIS: Volume 10 Environmental and Human Health Risk Assessment, Section 10.2.5, Table 10.2-3, pages 10-64 to 10-74.

Recommendation made by Interested Party:

The Proponent shall update air quality monitoring in their environmental and health risk monitoring program to include:

- *Analysis of the metals content of the dust collected in passive monitoring*
- *Discrete samples collected on a periodic basis from the camp and analyzed for acrolein and aldehyde.*

AEM's Response to Recommendation:

AEM has noted this recommendation and will incorporate the suggested air quality monitoring into an updated air quality monitoring program, in the event that the Project is approved.

The approach used in analysing metals present in dust is well established. Integrated dust samples will be collected using a passive sampling approach. The collected samples will then be sent for laboratory analysis, which would include a full scan of metals present in the non-organic fraction of the collected materials. The proposed analysis for metals present in the dust collected through passive monitoring would be continued for a period of 1 year after the commencement of operations, in the event that the Project is approved. If the analyses indicate that the metals are consistent over that period, the additional frequency of metals analyses would be reduced to once or twice annually. However, the passive monitoring program would continue as originally proposed.

There are currently significant challenges in accurately sampling acrolein concentrations in the ambient air at the levels expected in the vicinity of the Project. Of the two available U.S. EPA methods (TO-11A and TO-15), only the later method is recommended. The TO-15 method uses a pressurized canister to draw a sample of air that will then be analytically tested at a laboratory. Literature (Meridian Environmental Inc. 2011) indicates that levels as low as 0.69 µg/m³ were achievable when samples were collected over a 24-hour period. Other available methods such as NIOSH 2501/OSHA 52 and CARB 430 are primarily occupational sampling techniques whose thresholds are orders of magnitude higher than the predicted ambient acrolein concentrations for the Project.

The following table lists the available sampling methods for acrolein, their applicability, detection limits and drawbacks. Because there remain significant concerns on the data quality of monitoring acrolein using the U.S. EPA TO-11a method (U.S. EPA, 2010), periodic sampling of acrolein would be proposed using the U.S. EPA TO-15 method. Because of the manner in which samples are collected and analyzed

with TO-15, the collected samples could be analyzed for the presence of aldehydes also. The proposed acrolein and aldehyde monitoring would be conducted quarterly for a period of 1 year after the commencement of operations, in the event that the Project is approved. If the analyses do not indicate the presence of acrolein of aldehydes in detectable amounts, the monitoring would be discontinued.

Acrolein Monitoring Method	Sampling method	Detection Method	Sampling time	Detection Limit	Drawbacks
US EPA TO-11a	DNPH*-coated solid absorbent silica gel cartridge	HPLC with an UV absorption detector	1-24 hour	NA	DNPH-acrolein complex is unstable and is not recommended for collection times greater than 1 hour. However, to achieve ambient level detection, the sampling times requires several hours. Concerns have been raised by laboratories in Alberta.
US EPA TO-15	canister (typically 6L)	GC-MS	Up to 24 hour	0.69 µg/m³	Artifacts from ozone can have both positive and negative influences on the measured concentration.
NIOSH Method 2501/OSHA Method 52	sorbent tube with 2-HMP on an XAD-2 substrate	GC-nitrogen specific detector	1-24 hour	6.1 µg/m³	Sensitivity not sufficient for ambient air
CARB Method 430	Two impingers contain DNHP*	HPLC with an UV absorption detector	NA	NA	Concerns include use of hazardous reagents, lack of sensitivity, susceptibility to interference, and poor reproducibility at low concentration. Requires modification for use in ambient air sampling (the method was intended for emission sources).

References:

Meridian Environmental Inc. 2011. Assessment Report on Acrolein for Developing Ambient Air Quality Objectives. Report prepared for Alberta Environment February 2011.

US EPA, 2010. Data Quality Evaluation Guidelines for Ambient Air Acrolein Measurements. December 17, 2010.

Interested Party:	Government of Nunavut (GN)	Rec No.:	GN-21
Re:	Operations scenario represents bounding condition used to assess potential health effects in Volume 10, Section 10.2		

Reference to FEIS: Volume 10 Environmental and Human Health Risk Assessment, Section 10.2.5, Table 10.2-3, pages 10-64 to 10-74.

Recommendation made by Interested Party:

In Section 10.2.5 of Volume 10, Table 10.2-3 the potential pathways for effects to human health and safety are considered for each project activity and are scored as primary, minor or no linkage. For the mine site construction and Phase II AWAR construction, the pathways analysis indicated that these pathways are minor and are bounded by the operation effects.

No information or justification is provided to support this analysis. For example, there is no description of the equipment used during construction and operation or of the air emissions associated with these two Project phases. This analysis also does not provide a comparison of predicted air concentrations between the two Project phases.

Additional justification needs to be provided to support the assumption that the operation scenario is a bounding scenario for potential residual effects to human health and safety. This is a key assumption as to whether the "worst-case" scenario has been considered within the human health risk assessment.

The Proponent shall provide rationale in the context of the Environmental and Human Health Risk Assessment to support the assumption that the operations scenario is an appropriate bounding scenario even for the construction phase when Project activities will differ.

AEM's Response to Recommendation:

Table 10.2-3 identifies those pathway linkages that are categorized as "primary", "minor", or "no linkage" for each Project activity at each location during each phase of the Project. Mine site construction and Phase II All-Weather Access Road (AWAR) construction are two Project activities that were scored as "minor (bounded by operation effects)". In essence, the potential atmospheric emissions for the mine site and AWAR were considered to be higher for the Operations Phase compared to the Construction Phase, as explained further below.

The assessment focussed on the Operations Phase of the Project, which was determined to be the bounding case (i.e., the emissions and effects were larger than those of other phases of the Project). The Operations Phase of the Project includes a conservative operational scenario of all processing and support operations, as well as underground mining and one open pit operating a maximum rates. All combinations of processing, underground and pit were modelled to determine the phase that results in maximum impacts of the operations. For the Construction Phase, a preliminary screening of emissions was conducted using the general heavy construction emission factor provided by WRAP (2006) of

approximately 3.3 kg/acre/day. In comparison to the daily particulate rates estimated from Project operations (an average of 1435 kg/day), and the timeline of construction, the Operations Phase was shown to yield a higher daily emission rate. In addition, during the Operations Phase, 144 vehicles were included in the assessment, whereas the Construction Phase was anticipated to have 102 vehicles in operation.

For the AWAR, the emissions screening demonstrated that construction emissions were approximately 78% of the operational scenario. Therefore, the Operations Phase represents the bounding case, when emissions and effects will be higher than other phases of the Project.

Given that atmospheric emissions were predicted to be highest during the Operations Phase, it was considered reasonable to select the Operations Phase as the bounding case. As described in Volume 5, Section 5.2 (Atmospheric Environment), the atmospheric emission predictions were modelled considering the maximum single year of operations considering 6 different mining scenarios. This maximum emissions year during the Operations Phase was used in the human health risk assessment (Volume 10, Section 10.2, page 10-53) to represent atmospheric emissions throughout the life of the Project. As shown in the definition of the exposure duration (ED) used in the exposure assessment of the Chronic Air Quality Assessment (Section 10.2.6.3.1.2 of Volume 10, page 10-106), the predicted air concentrations for the maximum year throughout the Operations Phase were conservatively assumed to occur over the 18-year lifetime of the Project (i.e., 3 years of construction, 13 years of operations, and 2 years of post-closure). Using the maximum emissions year during operations to represent emissions during all phases of the Project is considered to be conservative, given that atmospheric emissions during the Construction and Post-closure Phases, as well as the submaximal years of the Operations Phase, would be expected to be lower. Therefore, the potential exposure and risks have likely been overestimated in the risk assessment and the predicted effects are considered to be consistent with a “worst-case” scenario.

Reference:

WRAP (Western Regional Air Partnership). 2006. WRAP Fugitive Dust Handbook. Prepared for: Western Governors’ Association, Western Regional Air Partnership’s Dust Emissions Joint Forum. Prepared by: Countess Environmental. September 7, 2006. Accessed online at: http://www.wrapair.org/forums/dejf/fdh/content/FDHandbook_Rev_06.pdf

Interested Party:	Fisheries and Oceans Canada (DFO)	Rec No.:	DFO-01
Re:	Recreational fish to be included in Offsetting Plan		

Reference to FEIS: Volume 7, SD 7-4 Conceptual Fisheries Protection and Offsetting Plan

Recommendation Made By Interested Party:

Agnico to update the FEIS and Offsetting Plan to include all the Recreational fish of Nunavut affected by the project.

AEM's Response to Recommendation:

The FEIS includes all recreational fish species in Nunavut that are affected by the Meliadine Project. There are two key places in the FEIS where this demonstrated. Volume 7, Table 7.5-6 (page 7-351) lists the common and scientific names of all fish species captured in the Local Study Area that are sport-fish versus non-sport-fish. Secondly, due to the nature of the selection of Valued Ecosystem Components (VECs), which considers all species in a system commensurate to their importance within both the aquatic food web and to local fishers, the VECs provide a surrogate measure of all fish species in the Local Study Area, as per Volume 7, Section 7.5.2, pages 7-325 and 7-326 of the FEIS:

"Furthermore, use of fish habitat as a VEC in the assessment provides an assessment of the fish community and life history requirements for all species. The fish habitat VEC addresses all species of fish, including forage species, with emphasis on habitat for species that are relatively abundant and with fishery value. Forage species did not meet the criteria used to select VECs; however, they were considered as a measurement endpoint (as fish habitat) and assessed as part of the Offsetting Plan. More details are provided within the Offsetting Plan (SD 7-4)."

Furthermore, the assessment of impacts on the predatory species VECs, such as lake trout, incorporates expected effects on forage species, because Project-related adverse effects on forage fish specifically used for food by the predatory species would be reflected in decreased growth and survival of the predator VECs. It should be noted, however, that due to low connectivity within much of the peninsula small lakes and ponds, many of these systems are isolated, and the forage species, such as ninespine stickleback, are not available to predatory VEC species.

Table 7.5-6: Common and Scientific Names of Fish Species Captured in the Local Study Area, and their Coded Abbreviations

Family	Common Name	Scientific Name	Inuktitut Name	Code[a]
Sportfish				
Salmonidae	Arctic char	*Salvelinus alpinus* (Linnaeus)	ᐃᖃᓗᐊᖅ / ᑕᕆᐅᖅᑎᐅᑕᖅ	ARCH
	lake trout	*Salvelinus namaycush* (Walbaum)	ᐃᓱᒋᖅ	LKTR
	Arctic grayling	*Thymallus arcticus* (Pallas)	ᐊᒥᖅᓗᒃᑐᖅ	ARGR
	round whitefish	*Prosopium cylindraceum* (Pennant)	ᓯᓗᒃᐸᐅᑲᒃ	RNWH
	cisco	*Coregonus artedi* Lesueur	ᐊᒥᖅᓗᒃᑐᖅ	CISC
Gadidae	burbot	*Lota lota* (Linnaeus)	ᑎᑭᒡᓗᒃ	BURB
Non-sportfish				
Cottidae	slimy sculpin	*Cottus cognatus* Richardson	ᑲᓇᕐᖅ	SLSC
Gasterosteidae	ninespine stickleback	*Pungitius pungitius* (Linnaeus)	ᑲᑭᓪᓚᕆᒃ	NNST
	threespine stickleback	*Gasterosteus aculeatus* Linnaeus	ᑲᑭᓪᓚᕆᒃ	THST

[a] According to Mackay et al. (1990)

Reference:

Mackay, W.C., G.R. Ash, and H.J. Norris (editors). 1990. Fish ageing methods for Alberta. R.L. & L. Environmental Services Ltd. in association with Alberta Fish and Wildlife Division and University of Alberta, Edmonton. 113 p

Interested Party:	Fisheries and Oceans Canada (DFO)	Rec No.:	DFO-02
Re:	Residual impact predictions for fish		

Reference to FEIS: Volume 7 Freshwater Environment

Recommendation Made By Interested Party:

The Proponent should identify their level of confidence that fish will not be affected, effects are negligible and the hydrology will return to baseline levels post closure. The Proponent should also identify an expected timeline for "reversibility" of impacts and how this relates to the duration of mine related impacts on fish populations.

AEM's Response to Recommendation:

While AEM is confident in its conclusions that fish will not be affected, effects are negligible, and the hydrology will return to baseline levels post closure, residual impact predictions must always be tempered with uncertainty associated with the data and the current knowledge of the system. Addressing the level of confidence of the impact predictions was a requirement of the Terms of Reference for the Project and this information is provided in Volume 7, Section 7.5.8.3, titled "Uncertainty" (page 7-464), and Table 7.5-32 (page 7-456). There is less certainty in long-term predictions of reversibility (e.g., over periods extending beyond 100 years), as explained on page 7-468 of Section 7.5.8.3 within Volume 7 of the FEIS:

"The key point is that the magnitude, duration, and geographic extent of effects from the Project on the physical environment and demography of fish species are negligible relative to the temporal and spatial scales that are associated with climate change processes. The absolute magnitude of direct and indirect effects from the Project is also small and the long-term trajectory of the abundance and distribution of valued components will not be significantly affected by the Project. The relative contribution to changes may increase when environmental conditions are poor, but such events will likely be infrequent within the duration of the Project and the absolute effect size from the Project would remain negligible to low."

The various timelines associated with reversibility (e.g., short-term, medium-term, etc.) are discussed in Table 7.5-32 on page 7-456 and on page 7-458. A clear definition of reversibility is presented in Table 7.5-32, on page 7-456 of the FEIS. Reversibility is defined as follows:

"Impact will not result in a permanent change of state of the population compared to similar environments not influenced by the Project.

Interested Party:	Fisheries and Oceans Canada (DFO)	Rec No.:	DFO-03
Re:	Terms of temporal impacts to fish.		

Reference to FEIS: Volume 7 Freshwater Environment

Recommendation Made By Interested Party:

DFO also requested in the DEIS review that 'revision is necessary to more accurately describe temporal impacts of the project currently described as 'temporary', or 'short duration' when referencing impacts of the project which is proposed to have an approximate 25 year lifespan. If impacts to particular waterbodies are intended to be shorter in duration, please make this clear for each waterbody.' DFO identified an inconsistent use of the terminology of 'short duration' referencing timespans of operations to post closure periods rather than evaluating the impacts during the lifespan of the species affected.

AEM's Response to Recommendation:

AEM is of the opinion that duration is accurately described in the FEIS. Inconsistences in the use of terminology identified by the review of the draft EIS (as noted in the response to DFO technical comment #82) were revised for the final EIS.

With regard to duration reflecting the lifespan of species affected, this was addressed in SD 7-4 Section 3.1 Overview (page 34) as follows in:

"As the first stage of habitat evaluation, pre-construction (i.e., natural or baseline) habitat units are calculated for medium and high risk waterbodies and streams affected by the mine site where permanent habitat changes are expected to occur. These are referred to as "habitat losses" in this report because they will be altered or destroyed by mine activities during the construction and operation stages and, therefore, will require offsetting measures according to DFO (2013a). Some of these habitat losses will be disruptions over a period of time (e.g., waterbody drained and then refilled after mine operations), whereas others will result in permanent alteration (e.g., increase in depth through open pit excavation) or destruction (e.g., covered by waste rock).

Although no physical changes are anticipated in disrupted habitats, the duration of the disruptions may exceed a reasonable number of generation times to be considered temporary, as interpreted by DFO (Koops et al. 2013). As such, the disrupted habitats are included with altered habitats in the calculations of losses and gains so that the impacts associated with the disruption of biological productivity in waterbodies that support the CRA fishery in Meliadine Lake are accounted for in the offsets. The separation of disrupted habitats from the altered ones is no longer required under the current Fisheries Act (i.e., serious harm to fish can result from permanent alterations only); nevertheless, the original plan was prepared when altered and disrupted habitats were differentiated under the definition of HADD, and it was decided to retain this distinction for the preliminary purposes of this conceptual offsetting plan."

References:

DFO. 2013a. Fisheries Productivity Investment Policy: A Proponent's Guide to Offsetting. Ecosystem Programs Policy. Fisheries and Oceans Canada, Ottawa, Ontario. DFO/13-1905. Available online: http://www.dfo-mpo. gc.ca/pnw-ppe/offsetting-guide-compensation/index-eng.html

Koops, M.A., M. Koen-Alonso, K.E. Smokorowski, and J.C. Rice. 2013. A science-based interpretation and framework for considering the contribution of the relevant fish to the ongoing productivity of commercial, recreational or Aboriginal fisheries. DFO Canadian Science Advisory Secretariat. Research Document 2012/141. iii + 28 p.

”

Interested Party:	Fisheries and Oceans Canada (DFO)	Rec No.:	DFO-04
Re:	Consideration of value of non-fisheries fish species		

Reference to FEIS: Volume 7 Freshwater Environment

Recommendation Made By Interested Party:
As DFO recommended in the DEIS Review, Agnico should recognize the value of the species that support Canada's commercial, recreational and Aboriginal fisheries (e.g. Slimy Sculpin. "Fishery Value" should be defined and clarified throughout the document not be evaluated based on fishing preference by a particular community and Agnico to ensure its interpretation is consistent with the Fisheries Act and Northwest Territory Fishery Regulations.

AEM's Response to Recommendation:
The criteria for the VEC selection are presented in Section 7.5.2 of Volume 7. Species that support CRA fisheries are included in the assessment as part of the VEC for fish habitat, as explained on page 7-325 and 7-326 of the aforementioned FEIS section:

"*Furthermore, use of fish habitat as a VEC in the assessment provides an assessment of the fish community and life history requirements for all species. The fish habitat VEC addresses all species of fish, including forage species, with emphasis on habitat for species that are relatively abundant and with fishery value. Forage species did not meet the criteria used to select VECs; however, they were considered as a measurement endpoint (as fish habitat) and assessed as part of the Offsetting Plan.*"

Although AEM acknowledges that all nine species identified during baseline studies (SD 7-1 and SD 7-2) could be considered as VECs, and all species play an important part in the ecosystem that supports the CRA fisheries, the main purpose for identifying and assessing VECs is to focus the assessment on the most important and valuable species based on the following factors:

- biophysical components identified by NIRB during Project scoping and AEM community and stakeholder consultation;
- communities or species that represent important ecosystem processes;
- territorial and federal listed (COSEWIC 2012; SARA 2012, CESCC 2001, 2006) species;
- communities or species that reflect the interests of regulatory agencies, First Nations groups, and communities;
- communities or species that can be measured or described with measurement endpoints;
- communities or species that allow cumulative effects to be considered; and
- current experience with environmental assessments and effects monitoring programs in Nunavut and the Northwest Territories.

Additional criteria used to select highly valued fish species as VECs for the assessment were as follows:

- economic importance to traditional and non-traditional users;
- relative abundance in the Meliadine Lake and Peninsula;
- trophic position; and
- unique life history requirements (see Volume 7, Appendix 7.5-E).

In view of the above, AEM maintains that the selection of the VECs appropriately considers the three key species (Arctic char, lake trout and Arctic grayling) to form part of the main assessment, with the remaining six species evaluated as part of fish habitat that supports the three selected VECs.

All fish species (i.e., VEC species and the supporting species) will be evaluated and addressed in the Final Offsetting Plan and the Final Aquatic Effects Management Plan (AEMP), which will be submitted along with AEM's application for *Fisheries Act* Authorization during the Regulatory Phase.

Interested Party:	Fisheries and Oceans Canada (DFO)	Rec No.:	DFO-05
Re:	Effects of Increased Access and Fishing Pressure		

Reference to FEIS: Volume 1, Popular Summary, pages 27 and 28, Fish and Fish Habitat; Volume 7, Section 7.5.6.2.5; SD 7-4 Offsetting Plan and AEM quote from Nunatsiaq News June 20, 2014.

Recommendation Made By Interested Party:

It is incumbent upon Agnico to mitigate overharvesting as a result of their project. DFO recommends that Agnico clarify their position with respect to mitigating fishing overharvesting throughout the lifespan of the mine so that DFO can make a determination as to whether or not Agnico's conclusions that effects from increased fishing pressure will be negligible compared to baseline conditions.

AEM's Response to Recommendation:

AEM has proposed implementing the following actions to prevent increased fishing pressure directly caused by the proposed Meliadine Project:

- All AEM employees and contractors will not be allowed to harvest fish, nor bring fish harvesting equipment to the Project site, nor use the site to initiate any fishing activity during their scheduled work rotations. This applies to the mine site, to the AWAR, and to the surrounding site. This will be a rule of employment at the site and will apply to all. This means there will be no added fish harvesting in the region directly attributable to the people employed at the mine site.
- The mine site area itself will be closed to all public access (other than mine business-related activity) and thus, no fish harvesting will take place using the minesite as a base for access to local lakes/streams.

Local employees can still fish once their work rotation has been completed, but to do so, they must return home to Rankin Inlet and then travel with their own vehicle/equipment to access their fishing grounds. AEM cannot control what an employee does once they leave the minesite and are on their time off.

In response to overwhelming public input, AEM has proposed that the Meliadine AWAR be open to public access outside of the working minesite areas. This means the public will have access by vehicle to streams/lakes accessible along the road, provided they are not within the working minesite areas. However, it should be noted that the public currently have access to these lakes/streams using ATVs, as the AWAR is built directly on the alignment of pre-existing ATV trails. On this basis, AEM believes that the Project itself will not materially increase the harvesting of fish in the immediate area of the proposed minesite. This is consistent with how AEM operates at its Meadowbank operation.

Interested Party:	Fisheries and Oceans Canada (DFO)	Rec No.:	DFO-08
Re:	Adapt terminology to reflect amended Fisheries Act		

Reference to FEIS: SD 2-2 Tailings Storage Facility Alternative Assessment, Section 3.7.1.6, page 22: third paragraph and page 23: 1st paragraph

Recommendation Made By Interested Party:

The proponent should adapt terminology to reflect the amended Fisheries Act and its requirements.

AEM's Response to Recommendation:

AEM will adapt its terminology to reflect the recently amended Fisheries Act and its requirements for future submissions under the Water Licensing Phase, as well as for future submissions seeking Fisheries Act authorizations for the Project, should the Project be authorized to proceed to the Permitting Phase.

Interested Party:	Fisheries and Oceans Canada (DFO)	Rec No.:	DFO-09
Re:	Regulatory Requirements under new Fisheries Act.		

Reference to FEIS: Volume 7, Section 7.5.2, page 7-325, last paragraph.

Recommendation Made By Interested Party:

*This should state Section 35(1) and not Section 35(2). Also, the proponent should state the full definition of Section 35(1) and not only part of it. Therefore, the statement should read as follows: "No person shall carry on any work, undertaking or activity that results in serious harm to fis*h that are part of a commercial, recreational or Aboriginal fishery, or to fish that support such a fishery".

AEM's Response to Recommendation:

AEM acknowledges the typographical error in the reference to the Section of the recently amended *Fisheries Act* and the completeness of the quote from the act. AEM has considered all fish species that support such a fishery in the FEIS (see Section 7.5.2 in Volume 7) and in the Conceptual Fisheries Protection and Offsetting Plan (see pages 8 to 10 in Section 1.4 of SD 7-4).

Interested Party:	Fisheries and Oceans Canada (DFO)	Rec No.:	DFO-10
Re:	List of Impacted Waterbodies		

Reference to FEIS:

- Volume 2 - Project Description, Table 2-29 List of Waterbodies Impacted by the Meliadine Project: pages 165 to 166;
- Volume 2, Section 2.6.2, page 178, second paragraph; and
- SD 2-1 Alternatives Assessment Report

Recommendation Made By Interested Party:

Agnico to clarify why streams were not incorporated into Table 2-29 as they are also considered waterbodies. Clarify the need for a pumping location if no dewatering is to occur for waterbodies E5, H20, and J7 from B6, Meliadine and J1. Also, clarify for consistency whether Agnico meant mid or late July referencing the shipping season.

AEM's Response to Recommendation:

Volume 2 - Table 2-29 (pages 165 and 166) should have been more accurately labelled to reflect the content. The paragraph preceding Table 2-29 states: "*The following Table 2-29 provides a tabular summary of the small ponds and lakes that will be impacted by the proposed development of the Meliadine Project*." The purpose of the table was only to reference small ponds and lakes, and not streams, which are discussed elsewhere in the FEIS.

Dewatering will occur at Ponds E5, H20 and J7, as indicated in Volume 2, Table 2-29. A volume estimate for each of these ponds was not available to calculate the corresponding dewatering volume due to an absence of bathymetric data. Consequently, the term NA (not available) was assigned for these ponds under the Dewatering Volume column of Table 2-29 (see note (a) at the foot of that table). However, as these ponds are relatively small, the dewatering volumes for these water bodies will also be relatively small.

The shipping season into Rankin Inlet varies according to prevailing ice conditions in Hudson Bay. In recent years the shipping season has started in mid-July, where in past years it would not have started until late July.

Interested Party:	Fisheries and Oceans Canada (DFO)	Rec No.:	DFO-
Re:	Timing Window Restrictions		

Reference to FEIS: Volume 2 – Mitigation Measures affiliated with AWAR, Section 2.6.4.1, pages 224 to 235.

Recommendation Made By Interested Party:

References to Timing Window restrictions for inwater works – the FEIS references the timing window restriction for spring spawners of May 1-July 15 in this region of Nunavut, though other portions of the project have potential to affect fall spawners (e.g. p.230 and p.233 of the document). It is advisable to simply reference that Agnico will adhere to DFO's Timing Windows for Nunavut: http://www.dfo-mpo.gc.ca/pnw-ppe/timing-periodes/nu-eng.html

AEM's Response to Recommendation:

AEM acknowledges DFO's recommendation and will endeavour to adjust all future references to the Timing Window restrictions for inwater works, as suggested.

Interested Party:	**Fisheries and Oceans Canada (DFO)**	**Rec No.:**	**DFO-**
Re:	**Mitigation Measures – Phase 2 AWAR – Discovery and By-Pass Roads**		

Reference to FEIS: Volume 2, Section 2.6.4.1, mitigation measures outlined on: page 230, in Water Crossings (Phase 1 and 2): page 228, first paragraph and page 233.

Recommendation Made By Interested Party:

The following sentence should be amended to inform readers that more measures might apply: "In accordance with DFO and Environment Canada guidance, the following will be applied during construction of the AWAR whenever near a waterbody or stream". The new sentence might read: "In accordance with DFO and Environment Canada guidance, the following are examples of measures that will be applied during the construction of the AWAR whenever in or near a waterbody or watercourse.".

AEM's Response to Recommendation:

While AEM is not proposing to update and resubmit the FEIS to address this recommendation, AEM acknowledges this statement, and is committed to following DFO and EC guidance with respect to measures that will be applied during the construction of the AWAR, particularly whenever in or near a waterbody or watercourse.

Interested Party:	Fisheries and Oceans Canada (DFO)	Rec No.:	DFO-13
Re:	Discrepancy in which waterbodies to receive waste rock		

Reference to FEIS: Volume 2, Section 2.6.1.8, Table 2-29 (pages 165 and 166) and Section SD 2-6 Surface Water Management Plan.

Recommendation Made By Interested Party:

There is much discrepancy between Tables 2-29 and Table 8. DFO would like for the proponent to provide clarification as to whether dewatering will be required for waterbody H13 and H19. DFO would like to confirm that the construction of the sump in H1 basin is for the water management facility. Clarify which waterbodies are to receive waste rock. Clarify why H8, A7 and other similarly 'reduced' waterbodies/watercourses are not included in calculations of impacts.

AEM's Response to Recommendation:

These recommendations made by DFO are requests for clarification to statements made in:

1) SD 2-6: text (throughout), Table 7 (pages 9 to 18) and Table 8 (pages 18 and 19);
2) Volume 2: Section 2.6.1.8, Table 2-29 (pages 165 and 166);
3) SD 7-4: Section 2 (pages 11 to 33); and
4) SD 2-2: Section 3.4.3 (pages 14 and 15).

Each of the statements refers to activities at ponds and lakes within the mine development area and is addressed individually below:

- Pond H19 (Rec 13): This pond will not be dewatered as stated in Table 8 of SD 2-6 (pages 18 and 19) and Table 2-29 of Volume 2 (pages 165 and 166). Pond H19 is small and will be in-filled during the construction of the plant site pad.
- Pond H1 (Rec 13): This pond will be used as a sump, as stated in Table 7 of SD 2-6 (pages 9 to 18) and as shown in Figures 2 to 7 of SD 2-6 (pages 62 to 67). Pond H1 will be affected by water management activities, as indicated in SD 7-4 (e.g., Section 4.1.3, page 46).
- Pond H13 (Rec 13): This pond will not be dewatered, as stated in Table 8 of SD 2-6 and Table 2-29 of Volume 2. Pond H13 is small and will be in-filled during the development of the B7 Waste Rock Storage Facility (east).
- Pond A58 (Rec 13): Table 7 of SD 2-6 (pages 9 and 13) should refer to Pond A58, instead of Pond A59. References to Pond A58 in Table 2-29 (page 165) of Volume 2 and in SD 7-4 (page 18) are correct.

- Pond H8 (Rec 13): Pond H8 is not considered to be impacted by mine activities (SD 7-4, Section 2.2.1, page 18). This pond will not be altered, as it will not be dewatered or filled-in.
- Pond A7 (Rec 13): Pond A7 is not considered to be impacted by mine activities (SD 7-4, Section 2.1.3, page 15). This pond will not be altered, as it will not be dewatered or filled-in.
- Pond A54 (Rec 14): During the Construction Phase, Pond A54 will be dewatered to allow the construction of the dike for the development of Sump B7-S-2 (within the footprint of Pond A54). Dewatering flow may be conveyed to AP01 or Pond A39, as practicable. Water collecting in Sump B7-S-2 following its completion will be directed to AP01 (SD 2-6, Table 7, page 10).
- Pond CH31 (Rec 14): Pond CH31 is considered impacted by mining activities, along with Ponds CH28, CH29 and CH32, as indicated in Table 2-29 of Volume 2 (page 166), SD 7-4, Section 2.2.4 (page 22), and SD2-6, Table 8 (page 19). The pond will not be dewatered; however, it will be filled-in from the development of the Discovery Waste Rock Storage Facility.

Interested Party:	Fisheries and Oceans Canada (DFO)	Rec No.:	DFO-14
Re:	Water management for the waste rock storage facility		

Reference to FEIS: Volume 2, Section 2.6.1.8, Table 2-29 (pages 165 and 166) and Section SD 2-6 Surface Water Management Plan.

Recommendation Made By Interested Party:
The proponent to provide clarification as to exactly which waterbodies will require dewatering/lowering/removal to facilitate the WRSF, how Agnico calculated these reductions in volume, and to address discrepancies in anticipated water level reductions (ex for Lake A6). DFO is also recommending that inconsistencies between Tables be corrected.

AEM's Response to Recommendation:

These recommendations made by DFO are requests for clarification to statements made in:

1) SD 2-6: text (throughout), Table 7 (pages 9 to 18) and Table 8 (pages 18 and 19);
2) Volume 2: Section 2.6.1.8, Table 2-29 (pages 165 and 166);
3) SD 7-4: Section 2 (pages 11 to 33); and
4) SD 2-2: Section 3.4.3 (pages 14 and 15).

Each of the statements refers to activities at ponds and lakes within the mine development area and is addressed individually below:

- Pond B36: As indicated in Table 7 of SD 2-6 (page 10), the water level of this pond will be lowered to prevent discharge from B36 to Lake B4 during the development of the B4 Waste Rock Storage Facility (from the construction phase at Year -3 to the operations phase at Year 4, see Figures 2 to 4 of SD2-6; pages 62 to 64). Pond B36 will then be removed to allow the development of Pump Pit 1 (Figures 5 to 7; pages 65 to 67, in SD 2-6).
- Pond A54: During the construction phase, Pond A54 will be dewatered to allow for the construction of the dike to create Sump B7-S-2 (within the footprint of Pond A54). Dewatering flow may be conveyed to AP01 or Pond A39, as practicable. Water collecting in Sump B7-S-2, following its completion, will be directed to AP01 (SD 2-6, Table 7, page 10).
- Lake A6: The water level of Lake A6 will be lowered by 1.5 m (Table 7, SD 2-6, and see also the lake bathymetry data presented in SD 7-1, Appendix D7 and water level shown in SD 2-6, Figures 3 to 7; pages 63 to 67).
- Ponds J8, J7, J6, J5, J4, J3 and J2: Pond J7 will be dewatered to allow the development of Wesmeg Pit 3 (SD 2-6, Figures 3 and 4; pages 63 and 64 respectively). Ponds J8, J6, J5, J4, J3 and J2 will not be dewatered. Pond J6 will form Sump WM-S-02 (SD 2-6, Figures 4 to 7, pages 64 to 67). Pond J8, J5,

- J4, J3 and J2 are small and will be filled-in during the construction of the ore stockpile and adjacent haul roads (SD 2-6, Table 8, page 19, and Volume 2, Table 2-29, page 166).
- Lake B6: This Lake will be dewatered to allow the development of the B7 Waste Rock Storage Facility (west), and therefore is considered a water body impacted by water management activities (SD 7-4, Section 2.2.1, page 19). The dewatering volume for the lake will be 166,100 m^3 (Volume 7, Table 7.5-8, page 7-356).
- Lake A6: The water level of Lake A6 must be lowered by 1.5 m. Based on the depth-area curve of this lake (SD 7-1, Figure 7-4, page 158), the dewatering volume for the lake will be 594,000 m^3.
- Pond CH31: Pond CH31 is considered impacted by mining activities, along with Ponds CH28, CH29 and CH32, as indicated in Table 2-29 of Volume 2 (page 166) and SD 7-4, Table 8 (page 19). The pond will not be dewatered; however, it will be filled-in from the development of the Discovery Waste Rock Storage Facility.
- Lake B45: The water level at Lake B45 must be raised by 0.6 m to match the Lake B44 water level (SD 2-2, Section 3.4.3, page 14).

Interested Party:	Fisheries and Oceans Canada (DFO)	Rec No.:	DFO-15
Re:	Explosives Management Plan		

Reference to FEIS: SD 2-14 Explosives Management Plan, Section 3.5

Recommendation Made By Interested Party:

P. 10 – The first bullet should be reworded to reflect guidance provided by DFO on the use of explosives and reference the Measures to Avoid Causing Harm to Fish and Fish Habitat available on DFO's website. Also, reference should be made to the NWT/Nunavut directive on overpressures from explosives not to exceed 50 kPa P. 10 – The second bullet should read: No explosive is to be detonated that produces, or is likely to produce, a peak particle velocity greater than 13 mm/s in a spawning bed during the period of egg incubation.

AEM's Response to Recommendation:

While AEM is not proposing to amend and resubmit FEIS SD 2-14 to address this recommendation, AEM acknowledges these suggestions and will make the proposed changes in the next revision of the Explosives Management Plan.

Interested Party:	Fisheries and Oceans Canada (DFO)	Rec No.:	DFO-
Re:	SD 3-1 Public Engagement and Consultation – updated Fisheries Act requirements		

Reference to FEIS: SD 3-1 Public Engagement and Consultation, Section 6.1, page 21, and Section 6.8, page 27.

Recommendation Made By Interested Party:

P. 21, Backfilling of selected open pits with waste rock – the proponent needs to refer to the appropriate document, i.e. Conceptual Fisheries Protection and Offsetting Plan.

P. 27, first bullet – Fisheries and Oceans Canada's engagement wording should be amended to reflect the amended Fisheries Act requirements.

AEM's Response to Recommendation:

AEM acknowledges DFO's recommendation. While AEM is not prosing to amend and re-submit FEIS SD 3-1 to address this recommendation, AEM will adapt its terminology to reflect the recently amended Fisheries Act and its requirements for future submissions. Updated language will be used for all submissions in the Water Licensing Phase and for future submissions seeking Fisheries Act authorizations for the Project, should the Project be authorized to proceed to the Permitting Phase.

Interested Party:	Fisheries and Oceans Canada (DFO)	Rec No.:	DFO-17
Re:	Regulatory Requirements for fish habitat (overwintering and duration of impacts).		

Reference to FEIS: Volume 7, Section 7.5.2, page 7-326; second and fourth paragraphs, Section 7.5.4.2.2.2, page 7-355, third paragraph; Section 7.5.5.2, page 7-409, first paragraph.

Recommendation Made By Interested Party:

Remove repetitive sentences.

Clarify which overwintering habitat will be accessible to fish during all stages of the mine (e.g. construction, preproduction, mining, closure and post-closure).

Adjust the FEIS to accurately account for permanent alterations to fish habitat as per DFO's definition, and duration of impacts (e.g. lifespan of mining activities – not temporary).

AEM's Response to Recommendation:

Repetitive sentences were unintentional, but removing the sentences will not alter conclusions in the assessment, and therefore, AEM is not proposing to amend and re-submit the FEIS to address this recommendation.

AEM is of the opinion that the FEIS has accurately described the duration of impacts, which are defined in the assessment. Adopting DFO's definitions in the FEIS will cause inconsistencies with other sections of the FEIS, and general confusion in the interpretation of impacts.

By the definitions of lakes and ponds used in the FEIS (i.e., lakes are deeper than 2 m in maximum depth, ponds do not exceed 2 m in maximum depth), none of the ponds in the Meliadine Project area currently provide overwintering habitat (see page 5 in Section 1.3 of SD 7-4) and will not provide overwintering habitat during all stages of the Project (except for those incorporated into the footprint of the proposed end pit lakes, which will provide overwintering habitat at post-closure). Except for Meliadine Lake and Lake A6, the remaining 7 affected lakes will be drained during the construction through mining stages and, therefore, will not provide overwintering habitat (Table 1 enclosed below). During closure, Lakes A8 and B5 (and the proposed end pit lakes) will be refilled, but will not provide overwintering until post-closure when all end pit lakes will be completely filled and attain acceptable water quality. Lakes B4, B6, B7, E4, and E5 will be permanently covered by waste rock or tailings and will not be accessible to fish.

Lake A6 will be drawn down by approximately 1 m; however, the remaining maximum depth (3.7 m) will be sufficient to allow overwintering during all stages of the Project. The overwintering habitat in Meliadine Lake will not be affected.

Table 1: Overwintering Habitat Accessible to Fish in Lakes Affected by the Project by stages of Mining

Lake	Mining Stage					Comments
	Construction	Pre-production	Mining	Closure	Post-closure	
Lake A6	yes	yes	yes	yes	yes	Partly dewatered
Lake A8	no	no	no	no	yes	Part of 2 pit lakes (P2 &
Lake B4	no	no	no	no	no	Under waste rock
Lake B5	no	no	no	no	yes	Part of 2 pit lakes (T1 &
Lake B6	no	no	no	no	no	Under waste rock
Lake B7	no	no	no	no	no	Under tailings
Lake E4	no	no	no	no	no	Under waste rock
Lake E5	no	no	no	no	no	Under waste rock
Meliadine Lake	yes	yes	yes	yes	yes	
8 End pit lakes	no	no	no	no	yes	

As described in the FEIS, the assessment approach for the Meliadine Project is aligned with the scale of the changes relevant to dynamics of the population. However, the language and definition of impacts in the "Conceptual Fisheries Protection and Offsetting Plan" were derived from DFO's guidance documents at the time, and any additional comments from DFO will be incorporated into the documents submitted in the Regulatory Phase, along with AEM's Application for *Fisheries Act* Authorization.

Interested Party:	Fisheries and Oceans Canada (DFO)	Rec No.:	DFO-18
Re:	Connectivity of fish habitat		

Reference to FEIS: Volume 7 Freshwater Environment, Section 7.5.5.2, page 7-418: the three bullets, and Section 7.5.6.2.2, page 7-446: last paragraph

Recommendation Made By Interested Party:

Consider the connectivity of all fish species listed in Schedule I (i.e. species of game fish) of the Northwest Territories Fishery Regulations and fish that support those fish.

AEM's Response to Recommendation:

As noted in the response to other DFO recommendations, the environmental assessment focused on the 3 fish species most valued as commercial, recreational, or aboriginal fishery species. In addition, fish habitat was also selected as a valued ecosystem component (VEC) to represent other important components such as lower trophic production and forage species, along with the other life requisites of the fish VECs (e.g., spawning, overwintering). Specific assessment of connectivity was addressed in SD 7-4 Conceptual Fish Protection and Offsetting Plan, Appendix B, Attachment A (Fisheries Risk Assessment through Application of the DFO Risk Management Framework), which included all fish species captured in the affected waterbodies. Also, the calculation of habitat unit losses and gains in SD 7-4 considered all fish species (including forage species) in the calculations of habitat units in the waterbodies affected by the Project footprint (see SD 7-4, Appendix D, Table D-1, pages 1 to 3 of 6).

AEM acknowledges that the changes in watershed boundaries and flows will affect some waterbodies and fish species they support. These considerations will be reviewed and addressed in the Final Offsetting Plan, which will be submitted along with AEM's Application for *Fisheries Act* Authorization during the Regulatory Phase.

Interested Party:	Fisheries and Oceans Canada (DFO)	Rec No.:	DFO-19
Re:	Freshwater Environment – use of explosives		

Reference to FEIS: Volume 7, Section 7.5.5.2, page 7-426 – the third and fourth bullets [Minor Pathways – Blasting near fish habitat].

Recommendation Made By Interested Party:

Reference should be to guidance for the use of explosives in or near Canadian fisheries waters in the Measures to Avoid Causing Harm to Fish and Fish Habitat available on DFO's website, and to ensure that instantaneous pressure change does not exceed 50kPa or a peak particle velocity greater than 13 mm/s in a spawning bed during the period of egg incubation..

AEM's Response to Recommendation:

AEM notes the above recommendation, and will follow these guidelines relating to blasting during Project construction and operation.

Interested Party:	Fisheries and Oceans Canada (DFO)	Rec No.:	DFO-20
Re:	SD 7-3 Conceptual Aquatic Effects Monitoring Plan – Requested Additions		

Reference to FEIS: SD 7-3 Conceptual Aquatic Effects Monitoring Plan; Volume 7 Freshwater Environment, Page 7-428, last paragraph.

Recommendation Made By Interested Party:
Clarify effects to quality of fish habitat in the AEMP; add fish habitat as affected by dust from blasting; consider all fish listed in the NWT Regulations; and consider sedimentation as a component of AEMP; and, DFO would like Agnico to include more than two reference lakes in the Aquatic Effects Monitoring Plan

AEM's Response to Recommendation:

On page 20 of Section 5.0 of SD 7-3, fish habitat monitoring is described as relating to the physical aspects of fish habitat, such as water levels and flows, water temperature, and dissolved oxygen. Quality of habitat will be evaluated through these metrics, and additionally through water and sediment quality monitoring, through comparison to baseline and reference conditions, as well as guideline values (e.g., Canadian Council for Ministers of the Environment [CCME] Guidelines for the Protection of Aquatic Life).

Potential effects on fish habitat from fugitive dust sources and blasting will be assessed via the water quality and sediment quality components of the AEMP. It is anticipated that water quality analyses will include determinations of particulate matter and nitrogen compounds (i.e., ammonia, nitrate, total Kjeldahl nitrogen [TKN], and total nitrogen) concentrations. Sediment analyses are expected to include particle size and nitrogen compounds concentrations.

Per Environment Canada's Environmental Effects Monitoring (EEM) guidance (EC 2012), two species of fish will be selected for monitoring as part of the AEMP. The species selected will be proposed in the preliminary AEMP design; however, a final decision on fish species to be used in the AEMP monitoring program will be determined following community consultation and stakeholder feedback.

Similarly, decisions regarding study locations and the number of reference lakes to be included in the AEMP study design will be determined following community consultation and stakeholder feedback. Details regarding all aspects of the AEMP design, including fish species and reference lake selection, will be provided in the AEMP design document to be submitted with the Type-A Water Licence Application.

<u>Reference:</u>

Environment Canada (2002). Metal Mining EEM Guidance Document. National Environmental Effects Monitoring Office, Gatineau, Quebec, Environment Canada. 2010: 70.

Interested Party:	Fisheries and Oceans Canada (DFO)	Rec No.:	DFO-21
Re:	Lack of value assigned to fish species supporting fisheries		

Reference to FEIS: Volume 7, SD 7-4 Conceptual Fisheries Protection and Offsetting Plan

Recommendation Made By Interested Party:

Clarify why Meliadine Lake was included in the Offsetting calculations while not proposed to be impacted by the Project directly, and clarify why no value was assigned to species that support the fisheries.

AEM's Response to Recommendation:

Meliadine Lake was included in the offsetting calculations because a small area of the lake (0.09 ha under the footprint of the water intake structure – see Section 2.3.4, page 26 of SD 7-4) will be impacted directly by the Project.

The Fishery Value, in conjunction with Relative Abundance, forms part of the Fish Species Weightings used in the Habitat Evaluation Procedure (HEP) model to calculate units of habitat losses and gains. Fishery values reflect the relative importance of each fish species for commercial, recreational, and Aboriginal fisheries; values are based on the relative proportion of each species in the Aboriginal harvest by Rankin Inlet fishers. They were derived in consultation with the traditional knowledge component of the study, and were rated on a scale of 0 to 1.

The fishery values of slimy sculpin, ninespine stickleback and threespine stickleback were set at zero because these species are not targeted fishery resources by local harvesters, and do not form part of the harvest. Nevertheless, their role in support of the CRA fishery is reflected in the second component of the Fish Species Weightings, which is Relative Abundance. Because Fish Species Weightings were calculated as an arithmetical mean of the two components (Fishery Value and Relative Abundance), the non-harvested species are considered in the HEP model through their contribution to the component of Relative Abundance (see Section 3.2.4.3 of SD 7-4, pages 40 and 41).

Interested Party:	Fisheries and Oceans Canada (DFO)	Rec No.:	DFO-22
Re:	Water bodies lacking fish sampling/consideration		

Reference to FEIS: Volume 7, SD 7-4 Conceptual Fisheries Protection and Offsetting Plan, Section 2.2.1, page 18

Recommendation Made By Interested Party:

In order to make conclusions on the acceptability of the Final Offsetting Plan during the regulatory phase, Agnico to confirm that waterbodies not fished will be sampled prior to the regulatory phase, and Agnico will review its tables for consistency.

AEM's Response to Recommendation:

The referenced sentence from page 18 of SD 7-4 in Recommendation 22 was misquoted. DFO states that the sentence reads "*Arctic grayling, cisco, burbot, and ninespine stickleback are confirmed or suspected to inhabit lakes E5…*", but the original document stated that "*Arctic grayling, cisco, burbot, and ninespine stickleback are confirmed or suspected to inhabit lakes **B**5 and B6*."

While it is true that fish sampling has not been conducted in Lake E5, sampling was conducted in its outlet stream (E4-5), where only ninespine stickleback were recorded. Based on the captures of Arctic grayling in Lake E4 and the maximum depth of 3.0 m recorded in Lake E5, Arctic grayling were noted as 'suspected' in stream E4-5 (see Table 2-10 on page 20). AEM agrees that Arctic grayling should also be noted in Table 2-9 as 'suspected' in Lake E5, but it is unlikely that cisco and burbot also inhabit this lake, based on their absence in lakes E4 and E3 located downstream of E5. Table 2-9 will be updated for the next revision of the Fisheries Protection and Offsetting Plan.

AEM will sample Lake E5 prior to the Regulatory Phase to confirm the presence of fish species in this lake.

Interested Party:	Fisheries and Oceans Canada (DFO)	Rec No.:	DFO-23
Re:	Offsetting Plan losses and gains calculations		

Reference to FEIS: Volume 7, SD 7-4 Conceptual Fisheries Protection and Offsetting Plan

Recommendation Made By Interested Party:
Agnico's calculations of losses and gains with respect to stream habitat alterations and diversions is not clear to DFO. Can Agnico elaborate on how calculations of losses and gains were reached, and was any consideration given to the time lag and water quality issues associated with flows received from an end pit lake and the sheer number of years of productivity lost until such time as connections can be re-established? This seems a large assumption of gains when the water quality and subsequent fish repopulation, minus loss in productivity during mining operations, is largely to be determined through detailed post-operations monitoring.

AEM's Response to Recommendation:

The methods for the calculations of losses and gains are explained in Section 3.0 of SD 7-4 (pages 34 to 41).

Re: Gains from Stream Habitat Alteration - Section 5.3.1 of SD 7-4 (page 65)
The entire 145 metres (m) of channel length of Stream B46-59 was included in the calculation of habitat losses (see SD 7-4, Section 4.2.1, p. 47) because the entire stream will be drained during operations. Upon closure, flows from the end pit lake created in Pump Pit #1 will be draining through this connection to Lake B46 and downstream to Meliadine Lake. As such, this channel will be altered to support higher flows and to provide an effective fish passage to access the upstream end pit lake. The habitat gains from the reconstruction are compared with the losses in the same manner as the remaining waterbodies (gain minus loss = net gain).

Re: Gains from New Diversion Channels - Section 5.3.3 of SD 7-4 (page 66)
The construction of new diversion channels between the altered watershed boundaries after closure will provide new habitat that did not exist before the Project. AEM acknowledges that the time period between the destruction of the pre-Project streams and the creation of new diversion channels is not accounted for directly in the calculations of losses and gains; however, this time lag is considered in the offset ratio, where the habitat gains will exceed the losses.

With regard to potential water quality impacts to Meliadine Lake via end pit waters, AEM confirms that the end pit lake waters will not be discharged to Meliadine Lake until an acceptable water quality standard is achieved (as discussed in Volume 7, Sections 7.4.5 and 7.5.5, as well as Volume 2, SD 2-6,

Sections 4.0 and 7.0 and SD 2-13, Sections 3.8 and 5.0). In addition to meeting general national water quality discharge guidelines, AEM will comply with all water licence requirements, once determined.

Re: Stream Habitat Gains – Section 5.3 of SD 7-4 (page 65)

The loss of 19 habitat units (HU) is not mentioned on page 65. AEM assumes that DFO is referring to Table 5-6 in Section 5.3.4 on page 67, where the loss of 19 HU in stream B46-59 is contrasted with a gain of 54 HU (net gain of 35 HU) after closure. The low number of HU calculated for pre-Project reflects poor habitat conditions in this stream (approximately 90% of substrate composed of silt and maximum depth is <0.5 m). After closure, the stream channel will be deeper (50% of length will exceed 0.5 m) and 59% will contain gravel substrate. Applying these characteristics to the HEP model (described in SD 7-4, Section 3.2.1.2, pages 36 and 37) results in the net gain of 35 HU.

Interested Party:	Fisheries and Oceans Canada (DFO)	Rec No.:	DFO-24
Re:	Conceptual Fisheries Protection and Offsetting Plan – definition of 'temporary' and habitat gain clarifications		

Reference to FEIS: SD 7-4 Conceptual Fisheries Protection and Offsetting Plan

Recommendation Made By Interested Party:

Recommendation: Elaborate on the calculations of loss versus gain associated with these activities.

AEM's Response to Recommendation:

The calculations of habitat loss versus gain are outlined in detail in Section 3.0 of SD 7-4 (pages 34 to 41). AEM recognizes that there would be a temporal loss of fish productivity during the period of construction through post closure, including the time for the restored habitats to become fully productive. AEM proposes that the lost temporal productivity would be covered in the offset ratio, as identified in Section 3.1 of the SD 7-4 (Conceptual Fisheries Protection and Offsetting Plan) on page 35 ("*it is generally expected that the habitat gains exceed the losses, to account for the time delay to make up for the lost fisheries productivity*"). The specifics of the offsets for the lost temporal productivity will be discussed with DFO before the preparation of the Final Offsetting Plan, which will be submitted as part of the application for *Fisheries Act* authorization during the Regulatory Phase.

Interested Party:	Fisheries and Oceans Canada (DFO)	Rec No.:	DFO-25
Re:	Pond H2 inclusion in offsetting calculations		

Reference to FEIS: Volume 7, SD 7-4 Conceptual Fisheries Protection and Offsetting Plan

Recommendation Made By Interested Party:

DFO would like clarification from Agnico on why H2 was considered low risk, and thus not included in Offsetting calculations.

AEM's Response to Recommendation:

Pond H2 **is not** considered "low risk" habitat. It is stated in SD 7-4 in Section 2.3.1 (page 22) and in Table 2-13 (page 23) that Pond H2 is used by Arctic grayling, and is considered to be of "medium" overall risk (see Table 6.1 of Appendix B in SD 7-4 for fisheries risk assessment background). As such, the loss of Pond H2 **is included** in the calculations of habitat losses and the overall summary values (see SD 7-4, Table 4-1 on page 43 and the corresponding text on page 46).

Interested Party:	Fisheries and Oceans Canada (DFO)	Rec No.:	DFO-26
Re:	Conceptual Fisheries Protection and Offsetting Plan – marine fisheries		

Reference to FEIS: SD 7-4 Conceptual Fisheries Protection and Offsetting Plan

Recommendation Made By Interested Party:

Recommendation: Clarify why impacts to the marine fisheries environment were not considered in the Offsetting Plan and what mitigation and avoidance measures are proposed for construction in the marine environment.

AEM's Response to Recommendation:

AEM initially did not feel that the spud barge would cause serious harm to marine fish, so did not consider offsetting to be necessary. In light of DFO's comment, AEM will discuss this concern with DFO during the Regulatory Phase, and, if appropriate, include offsetting measures. AEM will also include mitigation and avoidance measures, as appropriate, in the final Fisheries Protection and Offsetting Plan and in appropriate construction plans (e.g., relating to erosion control).

Interested Party:	Fisheries and Oceans Canada (DFO)	Rec No.:	DFO-27
Re:	Conceptual Fisheries Protection and Offsetting Plan – disruption and permanent alterations		

Reference to FEIS: SD 7-4 Conceptual Fisheries Protection and Offsetting Plan, Section 3.1 Overview, pages 34 and 35.

Recommendation Made By Interested Party:

Recommendation: Agnico to clarify references to disruption and permanent alterations to align with the amended Fisheries Act, and include these waterbodies in consideration for fish out protocol plan development.

AEM's Response to Recommendation:

As suggested in the DFO comment, the Final Conceptual Fisheries Protection and Offsetting Plan will be submitted in the Regulatory Phase, if the Project is approved. This updated version will clarify references to disruption and permanent alterations to align with the amended *Fisheries Act*, and will include those waterbodies in consideration for fish out protocol plan development.

Interested Party:	Fisheries and Oceans Canada (DFO)	Rec No.:	DFO-28
Re:	Offsetting Plan to remove reference to HADD		

Reference to FEIS: Volume 7, SD 7-4 Conceptual Offsetting Plan

Recommendation Made By Interested Party:

Recommendation: Agnico review the Fisheries Protection Policy Statement and Proponent's Guide to Offsetting to ensure all conditions are met when developing a finalized Offsetting Plan ready for the Regulatory phase. Specifically in relation to the Guide to Offsetting, Agnico has not yet included information to outline a description of monitoring measures, a timeline for implementation or an estimate of the cost to implement the plan. This more detailed updated plan will need to be submitted along with Agnico's Application for Fisheries Act Authorization in the Regulatory phase.

AEM's Response to Recommendation:

The term "HADD" (harmful alteration, disruption or destruction) is used six times in the Offsetting Plan, including once in the glossary. The remaining five occurrences of this term are used to explain the changes to the regulatory framework (Section 1.1) and the removal of disrupted habitats from the new *Fisheries Act* (Section 3.1). As such, AEM is not proposing to amend SD 7-4 at this time.

AEM has reviewed the *Fisheries Protection Policy Statement* and *A Proponent's Guide to Offsetting* published by DFO in 2013. References to these documents are made numerous times throughout the Conceptual Fisheries Protection and Offsetting Plan (SD 7-4). Because this plan is conceptual in nature, more detailed information on monitoring measures, timeline for implementation, and an estimate of the associated costs will be submitted in the Regulatory Phase, along with AEM's Application for *Fisheries Act* Authorization.

Interested Party:	Fisheries and Oceans Canada (DFO)	Rec No.:	DFO-29
Re:	Appropriate definitions under the *Fisheries Act*		

Reference to FEIS: Volume 7

Recommendation Made By Interested Party:

DFO refers Agnico to DFO's original DEIS request, and recommends that conclusions in the FEIS be based on definitions of fisheries as provided in the amended Fisheries Act.'

AEM's Response to Recommendation:

Please also refer to the response to the DFO Recommendation-04 for a more detailed discussion of the selection of the fish valued ecosystem components (VECs).

As is common in large environmental assessments, a subset of species that represent the most important species or groups are selected as VECs. For this Project, the three species of fish (Arctic char, Lake trout, and Arctic grayling) were selected as VECs based on their popularity for use by sport, commercial, and aboriginal fishing sectors. These species also represent the top levels of the food chain, so are a surrogate for lower trophic levels that support these species (i.e., changes in lower trophic levels or forage species that support these species would be reflected in the growth or survival of the selected VECs). To include all fish and lower trophic levels/species that support commercial, recreational or aboriginal fish species, and assess the impacts to each of these species, would make the impact assessment unmanageable. Thus, AEM is of the opinion that the VECs selected are appropriate for the FEIS, and are representative of fish, based on definitions of fisheries as provided in the amended *Fisheries Act*.

Interested Party:	Fisheries and Oceans Canada (DFO)	Rec No.:	DFO-30
Re:	Lake Trout baseline data		

Reference to FEIS: Volume 7, Section 7.5.5.2, page 7-408; SD 7-4 Conceptual Fisheries Protection and Offsetting Plan, Section 4.1.1, Table 4.1, page 43

Recommendation Made By Interested Party:

Clarify Table 4-1 to indicate whether LKTR are present or not and elaborate on how a local extirpation is within baseline values – what is currently affecting the lake so as to result in local extirpation?

AEM's Response to Recommendation:

Lake B69 supports a resident, self-sustaining population of lake trout. This lake is located approximately 1.2 km south of the A45-2 Waste Rock Storage Facility; however, it will not be affected by the Project because it is in a separate drainage basin. The likelihood of local extirpation is expected to be very low in Lake B69, and the likelihood will not measurably change because of the Project.

Volume 7, Section 7.5.5.2, Page 7-412:
"Extirpation of fish residing in the upper reaches of Basin A and B during the life of the operating mine is unlikely assuming that suitable spawning and overwinter habitat remains available, and that a high-magnitude disturbance event such as winterkill or extremely low flows (either from drought or temporary drawdown) will not occur (e.g., Vincenzi et al. 2012)."

Reference:

Vincenzi, S., A. J. Crivelli, D. Jesensek, and G. A. De Leo. 2012. Translocation of stream-dwelling salmonids in headwaters: insights from a 15-year reintroduction experience. Review of Fish Biology and Fisheries 22: 437-455.

Interested Party:	Fisheries and Oceans Canada (DFO)	Rec No.:	DFO-31
Re:	Offsetting Plan		

Reference to FEIS: Volume 7, SD 7-4 Conceptual Fisheries Protection and Offsetting Plan

Recommendation Made By Interested Party:

With consideration to the {above} quoted literature on fisheries productivity and end pit lake scenarios, can Agnico elaborate on the proposed staging of end pit lake construction to provide for fisheries productivity during mining operations and post closure? What steps will Agnico take to ensure the feasibility of their proposed end pit lake offsetting to ensure fisheries productivity and future use by recreational and Aboriginal fishers?

AEM's Response to Recommendation:

AEM will elaborate on the proposed staging of the end pit lake construction scenarios during the Permitting Phase, provided that the Project receives authorization to proceed to permitting. At this point in time, AEM has presented conceptual level fisheries offsetting measures to demonstrate that such measures can be applied, and AEM is committed to fully exploring these options. AEM recognizes that a higher level of detail will be required in designing offsetting measures when applying for a Type A Water License for this Project, and when applying for the required authorizations under the *Fisheries Act*.

Interested Party:	Fisheries and Oceans Canada (DFO)	Rec No.:	DFO-32
Re:	Death of fish statement added to Final Offsetting Plan		

Reference to FEIS: Volume 7, SD 7-4 Conceptual Fisheries Protection and Offsetting Plan, Section 1.0, page 1

Recommendation Made By Interested Party:

DFO recommends adding death of fish as an element to be addressed in the offsetting plan. Suggestion that reference state that "…offsetting measures will be required to offset death of fish, fish habitat altered and/or destroyed by Project development."

AEM's Response to Recommendation:

The statement that "*offsetting measures will be required to offset death of fish, fish habitat altered and/or destroyed by Project development*" will be included in the Final Offsetting Plan to be submitted along with AEM's Application for *Fisheries Act* Authorization in the Regulatory Phase.

Interested Party:	Fisheries and Oceans Canada (DFO)	Rec No.:	DFO-33
Re:	Clarification of 2 tables in Offsetting Plan and typos		

Reference to FEIS: Volume 7, SD 7-4 Conceptual Fisheries Protection and Offsetting Plan, Section 1.0, pages 2, 9, 10 and Section 2.0, page 15

Recommendation Made By Interested Party:

Provide clarification on the difference between the two tables. Also, explain why pond B60 is not listed as an impacted waterbody in table 2-29.

AEM's Response to Recommendation:

The comments and typos mentioned in the above DFO discussion will be addressed in the Final Offsetting Plan to be submitted along with AEM's Application for *Fisheries Act* Authorization in the Regulatory Phase.

The comments on Table 2-9 (Pump Pit #) and 2-29 (inclusion of B60) refer to Volume 2. The offsetting plan includes B60 because it was assumed that it will be drained, due to its proximity to Pump Pit #1. Specific details as to which ponds would have to be drained will be determined during further engineering design during the Regulatory Phase of the Project.

Interested Party:	Fisheries and Oceans Canada (DFO)	Rec No.:	DFO-34
Re:	Clarification to fish habitat losses in Pond A52		

Reference to FEIS: Volume 7, SD 7-4 Conceptual Fisheries Protection and Offsetting Plan, Section 2.2.3, page 21

Recommendation Made By Interested Party:

Provide clarification on this statement: "Dewatering will be an effect on fish and fish habitat as a permanent alteration."

AEM's Response to Recommendation:

The habitat losses in Pond A52 were divided into two components:

1. The north part (1.41 ha) of the pond will be dewatered during operations, but will be restored after closure.
2. The remaining area of the pond (5.66 ha) will be covered by the A45 Waste Rock Storage Facility and will not be restored.

DFO will have to clarify where the statement: "*Dewatering will be an effect on fish and fish habitat as a permanent alteration*" was found.

Interested Party:	Fisheries and Oceans Canada (DFO)	Rec No.:	DFO-35
Re:	Pond B8 fish habitat compensation - clarification		

Reference to FEIS: Volume 7, SD 7-4 Conceptual Fisheries Protection and Offsetting Plan, Section 2.4, pages 27 and 28.

Recommendation Made By Interested Party:

Considering that ninespine stickleback was captured it [Lake B8] should be listed as habitat lost in Volume SD 7-4 Conceptual Fisheries Protection and Offsetting Plan and listed in Schedule 2 of the Mineral Mining Effluent Regulations. Section 36 of the Fisheries Act applies to all fish and not only fish that are part of or support a commercial, recreational or Aboriginal fishery.

AEM's Response to Recommendation:

Pond B8 will not be covered by the Tailings Storage Facility (TSF). It is located under the footprint of the dike constructed to contain the tailings; however, it will not be in direct contact with the deleterious materials within the TSF. Nevertheless, AEM will give further consideration in consultation with Environment Canada and DFO as to whether Pond B8 should be included in Schedule 2 of the MMER.

Pond B8 is included in the habitat losses related to B7 South Waste Rock Storage Facility in Table 2-9 on page 18 of SD 7-4. Because Pond B8 is considered "low risk" (see Attachment A in Appendix B of SD 7-4), it was not included as part of the overall losses related to Section 35 Authorization (Section 4.1 of SD 7-4, pages 42 to 47).

Interested Party:	Fisheries and Oceans Canada (DFO)	Rec No.:	DFO-36
Re:	Consideration of instream work restrictions for fall and winter spawning fish		

Reference to FEIS: Volume 7, SD 7-4 Conceptual Fisheries Protection and Offsetting Plan, Section 2.6, page 29 (4th and 7th bullets)

Recommendation Made By Interested Party:

The Proponent should consider all fish that are listed in Schedule I (i.e. species of game fish) of the Northwest Territories Fishery Regulations and for fish that support them.

AEM's Response to Recommendation:

Due to their shallow nature and low flows, all streams and ponds within the Meliadine Project footprint freeze to the bottom during winter and therefore do not support species that spawn in fall or winter. Instream construction in the affected lakes that may contain fall or winter spawning species will be done after fish-out operations are conducted. As such, with the exception of Meliadine Lake, the instream construction restrictions to protect fall spawners in lakes will not apply to the Meliadine Project. The construction of the water intake in Meliadine Lake will take place within an acceptable period that considers both spring and fall spawning species (i.e., from 15 July to 15 August), unless authorized by DFO to extend this period.

The diversion channels will be designed to provide fish passage for all species (i.e., those listed in Schedule I and those that support them). This will be addressed in the Final Offsetting Plan, which will be submitted along with AEM's Application for *Fisheries Act* Authorization during the Regulatory Phase.

Interested Party:	Fisheries and Oceans Canada (DFO)	Rec No.:	DFO-37
Re:	Conceptual Fisheries Protection and Offsetting Plan – fisheries clarification		

Reference to FEIS: SD 7-4 Conceptual Fisheries Protection and Offsetting Plan, Section 2.7.1, pages 31 and 32; Section 3.1, page 34; Section 3.2.4, page 39

Recommendation Made By Interested Party:

- *Recommendation: Given that overwintering is only one of several types of fish habitat required to support fish, Meliadine Lake is not the only lake capable of supporting a fishery in the project area. Also, all fish that are listed in Schedule I (i.e. species of game fish) of the Northwest Territories Fishery Regulations and the fish that supports need to be considered in the assessment of impacts on fisheries resources.*

AEM's Response to Recommendation:

AEM did not claim that Meliadine Lake is the only lake capable of supporting a fishery in the Project area. The last sentence of the second paragraph on page 9 of Section 1.4 in SD 7-4 states that "*the remaining 17 waterbodies(<1% of the Meliadine Lake watershed) have Arctic grayling and only a few of the lower Peninsula waterbodies, immediately upstream of Meliadine Lake, have a few lake trout and Arctic char in them".*

AEM acknowledges that it is potentially possible to fish recreationally in any Nunavut waters under the current sport fishing regulations (provided a valid fishing license is obtained by non-beneficiaries of NLCA); however, according to the Kangliqlinik HTO (see page 9 of Section 1.4 and Appendix A in SD 7-4), it is very unlikely that anyone would catch or harvest fish from the Peninsula lakes. Using this traditional knowledge, AEM focused the impact assessment (Volume 7) on the 3 VEC species (Arctic char, lake trout and Arctic grayling) of the Meliadine Lake fishery; the remaining "supporting" species and habitat areas are evaluated as part of the fish habitat VEC. Nevertheless, the fishery of the Peninsula lakes is considered in the Offsetting Plan, where habitat losses from the Project are calculated based on the abundance and habitat suitability weightings of all fish species present (see Section 3.2.4 of SD 7-4, pages 38 to 41).

The Conceptual Fisheries Protection and Offsetting Plan uses habitat units as a surrogate "currency" for accounting of offsets, and the HEP model used to calculate losses considers abundance and habitat suitability for all nine species present in the Project area, regardless of whether they contribute to a fishery or not.

Interested Party:	Fisheries and Oceans Canada (DFO)	Rec No.:	DFO-38
Re:	Fish migration and nursery priorities; clarification of fish biomass evaluation		

Reference to FEIS: Volume 7, SD 7-4 Conceptual Fisheries Protection and Offsetting Plan

Recommendation Made By Interested Party:
P. 35, section 3.2 HEP Model – DFO doesn't see any HSI consideration for migration and nursery. P. 38, section 3.2.3 Life Function. P. 41, table 3-4 and 3-5 Fish Species Weightings.

[DFO recommends] that migration and nursery habitat be considered as important and as per the definition of Fish Habitat under the Fisheries Act. Clarify how fish biomass was evaluated for waterbodies that were not sampled, and where fish presence is suspected (e.g. A2a, A3 and A4).

AEM's Response to Recommendation:
Nursery habitat was considered in the Habitat Evaluation Procedure (HEP) model and was included as part of the rearing life function (see SD 7-4, Section 3.2.2 on pages 37 and 38). Migration was not considered because it does not apply to lake and pond habitats, which form the majority of the habitats assessed in the Offsetting Plan. Although applicable to stream habitat, the habitat characteristics (substrate and depth) used to assess the suitability of each stream habitat type for the life functions of each species cannot be easily applied to migration, which is not dependant on substrate type. Furthermore, migration potential would have to be assessed independently for each life stage (fry, juveniles and adults), thus greatly complicating the HEP model. The approach used is consistent with that presented in the DEIS and other discussions with DFO regarding the Project.

The method for evaluating fish biomass is explained in SD 7-4, Section 3.2.4, page 39:
"*Due to the large number of waterbodies and streams within the footprint of the Project, [and] their relative abundance within each individual waterbody and stream, fish species weightings for the Meliadine HEP model were based on the potential fish presence within each ecotype (i.e., through an assessment of general trends within the Peninsula),* ***rather than individual waterbodies or streams****, where the level of fishing effort was often biased by the objectives of the investigations."*

Additional information was provided in SD 7-4, Section 3.2.4, page 40, which further clarifies the biomass calculations: *"Biomass of all species captured within each ecotype was calculated by multiplying the number of fish captured by the mean weight of each species (as not all captured fish were weighed, the mean derived from the weighed sample was applied to the total catch). Relative biomass of each species was then estimated as a proportion of the total biomass within each ecotype "*

The details of biomass calculations are also provided in Table D-2 in Appendix D of SD 7-4 (pages 4 and 5).

Interested Party:	Fisheries and Oceans Canada (DFO)	Rec No.:	DFO-39
Re:	Inclusion of lakes and ponds in habitat restoration objective		

Reference to FEIS: Volume 7, SD 7-4 Conceptual Fisheries Protection and Offsetting Plan, Section 5.2.2, page 59.

Recommendation Made By Interested Party:

- *P. 59 – section 5.2.2 Habitat Restoration – Reestablishment of Disrupted Habitat, first paragraph – DFO would like clarification on the statement. It is mentioned that "this difference in species weightings results in a slight increase in HU after restoration, compared to pre-construction conditions."*
-
- *Confirm that only lakes A8 and B5 are being referred to here and not ponds A2, A2a, A3, A4 and A5 given there is no increase for these ponds when comparing the information from habitat loss and habitat restored.*

AEM's Response to Recommendation:

AEM confirms that only lakes A8 and B5 are being referred to in the above mentioned text from page 59, which states "...*lakes A8 and B5 located in the upper lake ecotype will be connected to end pit lakes after closure, and as such, are expected to support a wider species assemblage than during pre-construction. This difference in species weightings results in a slight increase in HU after restoration, compared to pre-construction conditions.* "

The following text is also from the same paragraph on page 59: "*In waterbodies such as A2, A2a, A3, A4, and A5 that are within the lower lake ecotype* (see SD 7-4, Section 3.2.4, pages 38 to 41), *the number of HU lost will be equal to the number of HU gained (i.e., no net change in HU).*"

The difference between these two groups of waterbodies is due to their location within different ecotypes (i.e., habitats in the lower lake ecotype have a higher value than the upper lake ecotypes because they contain a more diverse species assemblage that includes lake trout and Arctic char). Lakes A8 and B5 are presently in the upper lake ecotype (they do not contain lake trout or Arctic char), but will be included in the lower lake ecotype after effective connections of the pit lakes to Meliadine Lake are established in the closure phase.

Interested Party:	Fisheries and Oceans Canada (DFO)	Rec No.:	DFO-41
Re:	Offsetting calculations and tables in FEIS		

Reference to FEIS: Volume 7, SD 7-4 Conceptual Fisheries Protection and Offsetting Plan

Recommendation Made By Interested Party:

[DFO recommends] Agnico evaluate conclusions of the FEIS to be consistent with DFO Policy as previously recommended in the DEIS review. This would require revision to Offsetting Calculations and Tables throughout the FEIS.

AEM's Response to Recommendation:

The offsetting calculations and tables will be updated in the Final Offsetting Plan to be consistent with the new Fisheries Protection Policy. The Final Offsetting Plan will be submitted along with AEM's Application for *Fisheries Act* Authorization during the Regulatory Phase. It is our view that the revision of Offsetting Calculation and Table will not change the impact assessment; therefore, we are not proposing to update the FEIS.

Interested Party:	Fisheries and Oceans Canada (DFO)	Rec No.:	DFO-42
Re:	Conceptual Fisheries Protection and Offsetting Plan – fisheries values.		

Reference to FEIS: SD 7-4 Conceptual Fisheries Protection and Offsetting Plan, Section 3.2.4.1 and Volume 9 Socio-economic Environment and Impact Assessment, Section 9.3, pages 9-53 to -9-112.

Recommendation made by Interested Party:
Agnico to revise the FEIS conclusions of Fishery Value and the Offsetting Plan to consider the Aboriginal fishery to be consistent with the definitions in the Fisheries Protection Policy and Nunavut Land Claims Agreement. The Aboriginal Fishery is not limited to the preference of one community, but rather 'means that fish is harvested by an Aboriginal organization or any of its members for the purpose of using the fish as food, for social or ceremonial purposes or for purposes set out in a land claim agreement. . .' The FEIS itself contains information gathered through consultations that indicate the Aboriginal fishery is not limited to just Arctic Grayling, Lake Trout and Arctic Char as stated above.

AEM's Response to Recommendation:
The definition quoted above was defined in SD 7-4 Conceptual Fisheries Protection and Offsetting Plan on Page 8. It is also understood that Aboriginal Fishery, by definition, is not limited to the preference of one community.

The environmental assessment did not mean to imply that Arctic grayling, Lake trout, and Arctic char are the only species that contribute to the aboriginal fishery in Meliadine Lake, as other species such as round whitefish, cisco and burbot likely also contribute to the fishery. As Arctic grayling, Lake trout, and Arctic char were considered the most important to local Inuit groups as noted in TLU studies and consultation, these were the species selected as VECs for the fisheries component of the FEIS. Also, based on the most important species, it is likely that the Inuit fishery was likely concentrated in Meliadine Lake, as it contains the greatest concentrations of medium and large lake trout and Arctic char.

Although it is possible that a few Inuit fished in the peninsula lakes on an opportunistic basis, there are no data on specific peninsula lakes that may have been fished. However, if DFO is of the opinion that specific waterbodies within the peninsula lakes should be classed as Aboriginal fisheries, then these can be included in the Final Fisheries Protection and Offsetting Plan during the Regulatory Phase. It should be noted, however, that all waterbodies that would be directly affected by the Project that contained the VECs, round whitefish, and cisco were considered in the risk assessment and calculation of losses and gains of habitat units in the Conceptual Fisheries Protection and Offsetting Plan (SD 7-4).

Interested Party:	Fisheries and Oceans Canada (DFO)	Rec No.:	DFO-43
Re:	Conceptual Fisheries Protection and Offsetting Plan – recreational fishery		

Reference to FEIS: SD 7-4 Conceptual Fisheries Protection and Offsetting Plan.

Recommendation Made By Interested Party:

Recommendation: Agnico to revise the FEIS and Offsetting Plan considerations of recreational Fishery to be consistent with DFO's Fisheries Protection Policy definitions rather than state there is no recreational fishery, which is not accurate. Legally, there is a recreational fishery in Nunavut as it outlined in the NWT Regulations.

AEM's Response to Recommendation:

AEM acknowledges that it is potentially possible to fish recreationally in any Nunavut waters under the current sport fishing regulations (provided a valid fishing license is obtained by non-beneficiaries of NLCA); however, according to the Kangliqlinik HTO (see Appendix A of SD 7-4) it is very unlikely that anyone would catch or harvest fish from the Peninsula lakes. Using this traditional knowledge, AEM focused the impact assessment (Volume 7) on the Meliadine Lake fishery for the 3 VEC species (Arctic char, lake trout and Arctic grayling); the remaining "supporting" species and habitat areas are evaluated as part of the fish habitat VEC. Nevertheless, the fishery of the Peninsula lakes is considered in the Offsetting Plan, where habitat losses from the Project are calculated based on the abundance and habitat suitability weightings of all fish species present (see pages 38 to 41 in Section 3.2.4 of SD 7-4).

The legal possibility of a recreational fishery in the Peninsula lakes and ponds will be addressed in the Final Offsetting Plan, to be submitted as part of AEM's application for *Fisheries Act* authorization during the Regulatory Phase. The Final Offsetting Plan will also address the supporting role of Peninsula waterbodies to the Aboriginal and recreational fisheries in both Meliadine Lake and the Peninsula watersheds.

Interested Party:	Fisheries and Oceans Canada (DFO)	Rec No.:	DFO-44
Re:	Marine Environment and Impact Assessment		

Reference to FEIS: Volume 8, P. 8-75, Section 8.3.2.2.1.4 Species at Risk, Table 8.3-6, page 8-75

Recommendation Made By Interested Party:

Volume 8, P. 8-75, section 8.3.2.2.1.4 Species at Risk – In table 8.3-6: Species at Risk Potentially Occurring in the shipping corridor in Hudson Bay/Hudson Straight Killer whale is not listed, but when looking at the Species at Risk website, the Killer whale Northwest Altlantic and Eastern Arctic population is designated as special concern by COSEWIC.

DFO Recommendations:

Provide clarification as to why the Killer Whale was not included.

AEM's Response to Recommendation:

Killer whales have been added to Table 8.3-6 (see below): Species at Risk Potentially Occurring in the shipping corridor in Hudson Bay/Hudson Straight (from Volume 8, Section 8.3.2.2.1.4 Species at Risk, page 8-75). Killer whales are included in Table 8.3-4: Overview of Marine Mammal Species Found within the LSA [local study area] and RSA [regional study area] (page 8-46), noting that they are found in both the LSA and RSA, have no SARA status, but are of Special Concern under the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). According to COSEWIC, the range of the associated Designatable Unit (unique population) of killer whales does include Hudson Bay and Hudson Strait.

FEIS Volume 8, Table 8.3-6: Species at Risk Potentially Occurring in the Shipping Corridor in Hudson Bay / Hudson Straight

Common Name	Species	SARA Status	COSEWIC Status
Marine Mammals			
Narwhal	*Monodon monoceros*	No status	SC
Beluga whale	*Delphinapterus leucas*	No status	EN – EHB stock SC – WHB stock
Bowhead whale	*Balaena mysticetus*	No status	SC
Killer whale	• *Orcinus orca*	No status	SC
Polar bear	*Ursus maritimus*	SC – Schedule 1	SC
Walrus	*Odobenus rosmarus*	No status	SC
Marine Birds			
Peregrine falcon	*Falco peregrinus tundrius*	SC-Schedule 1	SC
Ross's gull	*Rhodostethia rosea*	TH – Schedule 1	TH
Ivory gull	*Pagophila eburnea*	EN – Schedule 1	EN
Red knot	*Calidris canutus*	EN - *rufa ssp.* – Schedule 1 SC - *islandica ssp.* – Schedule 1	EN - *rufa ssp.* SC - *islandica ssp.*

[a] SARA (Species at Risk Act).The Act is a key federal government commitment to prevent wildlife species from becoming extinct and secure the necessary actions for their recovery. It provides for the legal protection of wildlife species and the conservation of their biological diversity (extracted from SARA 2012).

[b] COSEWIC (Committee on the Status of Endangered Wildlife in Canada) is a committee of experts that assesses and designates which wildlife species are in some danger of disappearing from Canada. It is up to Government to legally protect wildlife species designated by COSEWIC. The potential impacts of legal listing are for Government to analyse, and the Species at Risk Act (SARA) applies only to wildlife species on the SARA legal list (extracted from COSEWIC 2012).
EN=Endangered, SC=Special Concern, TH=Threatened

Interested Party:	Fisheries and Oceans Canada (DFO)	Rec No.:	DFO-45
Re:	FEIS Conclusion and General Comments – Adaptive Management		

Reference to FEIS: Volume 11 Conclusions, Section 11.4 Adaptive Management, page 11-27.

Recommendation Made By Interested Party:

Recommendation: Amend the name of the SD 7-4 document since it is no longer the No Net Loss Plan on p.11-27 of Volume 11.

AEM's Response to Recommendation:

AEM will adapt its terminology in future submissions under the Water Licensing Phase to reflect the name change from No Net Loss Plan to Fisheries Protection and Offsetting Plan.

Interested Party:	Fisheries and Oceans Canada (DFO)	Rec No.:	DFO-46
Re:	FEIS Conclusion and General Comments – language consistency		

Reference to FEIS: SD 2-6 Surface Water Management Plan and SD 7-4 Conceptual Fisheries Protection and Offsetting Plan

Recommendation Made By Interested Party:

Recommendation: Ensure consistency in the FEIS when using the word 'ponds' and 'lakes' as the utilization alternates for the same waterbody throughout the FEIS; the same comment applies to use of km vs ha.

AEM's Response to Recommendation:

AEM thanks DFO for their comment. AEM will use consistent terminology when referencing a waterbody as either a pond or a lake, as well as use one unit type (i.e. either km or ha) for future submissions under the Water Licensing Phase of the Project , particularly the Water Management Plan and the Fisheries Protection and Offsetting Plan.

Interested Party:	Fisheries and Oceans Canada (DFO)	Rec No.:	DFO-47
Re:	General Comments – Fish Baseline Study of 2012		

Reference to FEIS: Volume 7 Freshwater Environment

Recommendation Made By Interested Party:

Provide clarification as to the exact location of documents such as the baseline study referenced in the FEIS [re: fish baseline study done in 2012].

AEM's Response to Recommendation:

There was no independent baseline report created from the limited fish baseline study conducted in 2012. The data from the 2012 fish baseline study are incorporated into the FEIS in Volume 7, Appendix 7.5-C, with the rest of the baseline fish data.

Interested Party:	Environment Canada (EC)	Rec No.:	EC 6.1.1
Re:	Shipping Emissions Estimates (impact on local air quality)		

Reference to FEIS: Volume 5 Atmospheric Environment and Impact Assessment, Section 5.2.5.5.1, Table 5.2-33, page 5-55

Recommendation made by Interested Party:

EC recommends that the Proponent provide details on the shipping emission estimates. The details should include information on the emission factors and assumptions used in the calculations and information on emissions from support vessels.

AEM's Response to Recommendation:

The assumptions related to the number and frequency of marine vehicles is provided in Volume 5, Section 5.2.5.5.1 (pages 5-54 and 5-55). Emission factors were sourced from the following reference:

2005 - 2006 BC Ocean-Going Vessel Emissions Inventory, Chamber of Shipping, Vancouver BC.

Interested Party:	Environment Canada (EC)	Rec No.:	EC 6.2.2
Re:	Effluent quality and discharge limits		

Reference to FEIS:

- Volume 2, Subsection 2.6.1.4; Subsection 2.6.1.5 Mining – Open Pits; Environmental Management Page 130
- Volume 7, Appendix 7.4-A Water and Sediment Quality Model Table 7.4-A24 Preliminary Maximum Allowable Effluent Concentrations
- SD 2-6 Surface Water Management Plan, Section 7.6.1Water Quality Operation Phase; Appendix C Mine Site Water Quality Predictions

Recommendation made by Interested Party:

EC recommends the following with regards to effluent quality:

- *That the Proponent monitor water quality from Year 3 onwards for all source waters that report to waterbody AP-01 and use data for total metals to periodically re-run the water quality model, or otherwise update predictions in order to inform both operational and closure planning;*
- *That Table 7.4-A24 be updated with an additional column showing predicted effluent quality for each parameter (minimum, maximum and median) over life of mine. This will be useful for developing effluent quality criteria and further refinement of edge of mixing zone concentration targets; and*
- *Thresholds should be identified that would trigger implementation of further treatment for AP-01 discharges and included in an adaptive management plan.*

AEM's Response to Recommendation:

Bullets 1 and 3 of this recommendation are considered details that will be discussed in the water licensing phase.

For the Type-A Water Licence submission, AEM will update Table 7.4-A24 (Appendix 7.4-A of FEIS Volume 7; page 7.4-A - 37) to include the modelled minimum, maximum, and median effluent quality predictions for the life of mine. AEM agrees with Environment Canada that this information will be useful in the development of end-of-pipe effluent quality criteria for the Project, and in further refining the edge of mixing zone concentration targets during the Type-A Water Licence process.

Interested Party:	Environment Canada (EC)	Rec No.:	EC 6.2.4
Re:	Storage of Saline Water in Lake B4		

Reference to FEIS:

- Volume 2, Subsection 2.6.3.3. Waste Water Treatment Facilities, Page 202;
- Volume 7, Subsection 7.2.2.6 Permafrost; and
- SD 2-6 Table 16 Water Balance; Section 4.6 Tiriganiaq Area; Appendix C Mine Site Water Quality Predictions

Recommendation made by Interested Party:

Lake B4 will receive saline minewater (average total dissolved solids (TDS) of 61,000 mg/L and chloride of 32,000 mg/L) and drilling fluid (average TDS of 87,000 mg/L and chloride of 47,000 mg/L) from the Tiriganiaq underground from Year 2 up until the start of Year 3 when Lake B4 is covered by the waste rock pile. Examples of volumes can be found in Table 16, with the amounts estimated in the water balance for Years 1 and 2 as approximately 650,000 m3 and 695,000 m3 respectively.

Has the Proponent considered the possibility of salinity-related freezing point depression, with the potential for thermal/permafrost destabilization in the area of B4? It was noted that the groundwater salinity causes freeze point depression at depth with a change in permafrost depth from 450 m bgs (metres below ground surface) to an estimated 350 m bgs. It is not clear whether there is the possibility that saline water will migrate from Lake B4 into the shallow groundwater and cause permafrost thawing.

EC Recommendations:

EC recommends that salinity in Lake B4 and its effects on permafrost stability be considered.

AEM's Response Recommendation:

The potential for effects to permafrost from storing saline underground water in Lake B4 is addressed in Volume 7, Section 7.2.3.3 (pages 7-46 to 7-48) of the FEIS.

Interested Party:	Environment Canada (EC)	Rec No.:	EC 6.2.5
Re:	Conceptual aquatic effects monitoring		

Reference to FEIS: Volume 2, Table 2-33, Page 173; Table 2-34, and Table 2-35 Page 174 and SD 7-3 Conceptual Aquatic Effects Monitoring Plan (AEMP)

Recommendation made by Interested Party:

EC recommends:

- *A more comprehensive approach to selecting parameters that will be monitored for operational purposes; and*
- *A working group be set up to further develop the AEMP in advance of construction.*

AEM's Response to Recommendation:

To the extent practical, the suite of water quality parameters monitored at all stations (regulated monitoring [EEM, AEMP, SNP] and verification monitoring) will be identical. Preliminary parameters of concern that are proposed include: major ions, TSS, TDS, nutrients, metals (total and dissolved), and hydrocarbons. More details on proposed parameters to monitor will be provided during the water licencing phase.

As part of the water licencing phase, a preliminary AEMP design will be provided. It is the intention of AEM to consult with different interveners to refine the plan.

Interested Party:	Environment Canada (EC)	Rec No.:	EC 6.3.2
Re:	Responses to Environmental Emergencies – Other Spill Scenarios		

Reference to FEIS:

- SD 2-16 Spill Contingency Plan;
- SD 8-2 Oil Pollution Emergency Plan; and
- SD 2-15 Risk Management and Emergency Response Plan.

Comment made by Interested Party:

The Spill Contingency Plan (SD 2-16), Section 8 Training and Emergency Spill Exercise (Page 24), indicates that training exercises will include, among others, "Desktop exercises of 'worst case' scenarios", and Marine shoreline recovery operations". Section 9, Potential Spill Analysis (Page 25) indicates that …potential spill analysis will be conducted for a variety of potential worst case scenarios."

Although the scenario description of the fuel tanker roll-over, as indicated in Section 9 Potential Spill Analysis (Page 25) presents an obvious major spill scenario, a 'worst case' spill scenario would very likely involve a receiving water body being impacted.

EC Recommendations:

EC recommends that the Proponent develop other potential scenario descriptions that may better represent a worst case incident presenting potential impacts to receiving water bodies, which may better help to "identify potential risk areas" such as marine shorelines, rivers or waterway crossings.

AEM's Response to Recommendation:

AEM thanks EC for this input. This suggestion comes too late for inclusion in the FEIS, however further refinement of the Project specific Spill Contingency Plan, Oil Pollution Emergency Plan and the Risk Management and Emergency Response Plan will continue should the Project be approved to proceed to permitting. AEM is interested to learn more on this subject from EC and would be very open to obtaining EC input/assistance, especially in the form of examples/case studies of how such scenarios have been used in other emergency response plans so that AEM can utilize this type of input in the further refinement of its Meliadine Project response plans should the Project be given authorization to proceed into permitting. It is our view that while emergency response plans can always be improved, the level of emergency response planning included within the FEIS is sufficient for environmental assessment as it demonstrates that emergencies have been considered and that plans have been developed to address mitigation steps should an incident occur.

Interested Party:	Environment Canada (EC)	Rec No.:	EC 6.3.3
Re:	Responses to Environmental Emergencies – Fuel Transfer Activities		

Reference to FEIS:

- SD 2-16 Spill Contingency Plan;
- SD 8-2 Oil Pollution Emergency Plan; and
- SD 2-15 Risk Management and Emergency Response Plan.

Comment made by Interested Party:

The Oil Pollution Emergency Plan (SD 8-2), Section 2.5: Measures to Minimize a Diesel Pollution Incident (Page 7) indicates "A containment boom could be deployed between the onshore transfer point and the small tanker's hull during fuel transfers as a precaution to contain any fuel that may accidentally spill".

EC Recommendations:

EC recommends that the Proponent:

- *Undertake hydrologic trajectory modeling for potential spilled diesel product for the fuel transfer area of operations within Melvin Bay, the access passage area, and the area surrounding Panorama Island; and*

- *As a best practice, pre-deploy containment boom for all fuel transfers from the small tanker to the onshore transfer point at Itivia Harbour. Alternatively, that specific criteria be developed as a precautionary protective measure for the pre-deployment of containment boom for ship-to-shore fuel transfer activities.*

AEM's Response to Recommendation:

AEM thanks EC for this input. While this suggestion comes too late for inclusion in the FEIS, further refinement of the Project specific Spill Contingency Plan, Oil Pollution Emergency Plan and the Risk Management and Emergency Response Plan will continue should the Project be approved to proceed to permitting.

As noted in SD 8-2 Oil Pollution Emergency Plan, containment booms are one precautionary mechanism that may be employed, but it may not be appropriate to implement this measure in respect to every ship to shore transfer. During the recent NIRB hearings in respect of Baffinland's Early Revenue Phase, Transport Canada provided the Board with advice regarding their suggestions for an existing term and condition directed at preventing potential harm should a spill occur while ship to shore fuel transfer is taking place. In the following summary, TC expressed the view that the practice of "prebooming" is largely ineffective when extending beyond 300 metres, which the Board quoted on Page 146 of the NIRB 12.8.2 Early Revenue Phase Public Hearing Report:

> "The other element concerns comments with regard to our position on pre-booming. We do not recommend pre-booming as applied to a tanker that is providing fuel from an offshore position, so that is where the tanker is anchored, approximately 1 kilometre away. Our experience and our knowledge has found that, once you're going beyond 300 metres of boom, the effectiveness of the boom and the safety considerations to deploy it are not beneficial to actually containing any spill. Even in the Gulf of Mexico disaster where thousands of -- you may have heard of reports where thousands of metres and kilometres and miles of boom were being deployed in any one application of a boom. It was -- it would be about 300 metres would be the maximum extent that the boom would be deployed, so to encircle a tanker that is located 1 kilometre offshore, you're talking 2,000 metres of boom and then some to fully encircle the tanker. And to apply this safely would, first off, be a safety challenge, and secondly, the efficacy of the boom in open water with that land would be very limited, as the boom would be subject to the wave action and the likelihood of containing anything from that boom would be extremely low."

AEM will take EC's recommendations under advisement and will use this input in the further refinement of its Meliadine Project response plans, but in AEM's view the Meliadine Project Certificate (if issued) should not include conditions that specifically require pre-deployment of containment boom.

AEM expects that the referenced transfer of fuel will ultimately be under the control of the shipping company contracted by AEM to transport fuel to Rankin Inlet. AEM will work with the shipping company to develop specific transfer procedures and to refine their spill emergency response planning in coordination with AEM's spill management plans. AEM will require that best practices be followed and that all regulatory requirements must be met during ship to shore and any other marine-based fuel transfer events. AEM anticipates that the successful bidder will likely be one of the shipping companies with a long history and experience in the delivery of fuel to communities throughout Nunavut.

It is our view that, while emergency response plans can always be improved, the level of emergency response planning included within the FEIS is sufficient for environmental assessment, as it demonstrates that emergencies have been considered and that plans have been developed to address mitigation steps should an incident occur.

AEM is agreeable to carrying out hydrologic trajectory modeling for potential spilled diesel product for the fuel transfer area of operations within Melvin Bay and the access passage area as part of future updates to its Oil Pollution Emergency Plan to be completed before the start of construction. As part of this update, AEM sees value and will consult with EC to determine the precise locations for such spill modelling.

Interested Party:	Environment Canada (EC)	Rec No.:	EC 6.4.2
Re:	Cumulative Impacts to Marine Birds from Vessels Along the Shipping Route		

Reference to FEIS:

- FEIS Volume 2 Project Description Subsection 2.2
- FEIS Volume 4 Impact Assessment Subsection 4.5.2.4
- FEIS Volume 8 Marine Environment Subsection 8.3.6.1

Recommendation made by Interested Party:

In Volume 2 Project Description, AEM indicates that the Meliadine Project, along with reasonably foreseeable future development in the Project area, has the potential to increase shipping and generate cumulative effects on marine resources. Although AEM provided anticipated year vessel traffic in Hudson Strait during the expected life span of the Project (construction and operations phases) in Volume 2 Project Description and Volume 8 Marine Environment, the Mary River Project was not considered due to recent addition of project phases within that project.

EC would like to remind AEM that shipping from the Mary River Project may occur through Hudson Strait during the operations phase of the Meliadine Project and is permitted under the existing Mary River Project Certificate. AEM has provided a Project schedule in Volume 2 Project Description, Figure 2-1 which includes a two year construction phase and a 13 year operations phase for the Meliadine Project. Shipping traffic from the Mary River Project should have been considered in FEIS Volume 8 Marine Environment, Tables 8.3-11: Anticipated Yearly Vessel Traffic in Hudson Strait during the Meliadine Project – Operations Phase as well as in FEIS Volume 4 Impact Assessment, Section 4.5.2.4 Reasonably Foreseeable Developments.

EC recommends that the Proponent include the Mary River Project when assessing cumulative effects on Marine Birds in Hudson Strait, including annual reporting.

AEM's Response to Recommendation:

At the time of AEM's preparation and finalization of the Meliadine EIS, the revised Project Description for the Mary River Project no longer included shipping activities in Hudson Strait, according to Baffinland's publicly available 'Addendum to Final Environmental Impact Statement for the Mary River Project - dated June 2013'. The export terminal, as described in the above referenced document, was to be based at Milne Inlet on the northeast end of Baffin Island, with transport of minerals from the mine to the terminal occurring via truck, as opposed to railway as originally proposed. The revised shipping route consisted of Milne Inlet to Davis Strait via Eclipse Sound. As such, Mary River Project was not considered to interact in a cumulative nature with the Meliadine Project, due to Baffinland's revised shipping corridor not including shipping through Hudson Strait. At the time of the EIS preparation, all relevant projects were included in the cumulative effects assessment.

Interested Party:	Environment Canada (EC)	Rec No.:	EC 6.4.5
Re:	Responses to Environmental Emergencies – Protection of Wildlife (Marine Birds)		

Reference to FEIS: SD 2-16 Spill Contingency Plan

Comment made by Interested Party:
In the site-specific Spill Contingency Plan, AEM references federal and territorial regulations applicable to the protection of wildlife, including migratory birds.

However, there is not a section or specific directions for spill contingency measures for wildlife. AEM will be shipping, transferring and storing hazardous materials, including cyanide, so there is a potential for wildlife interactions with toxic materials. Please see Section 6.3 of this Technical Review for specific recommendations related to spills.

Marine birds are vulnerable to oil spills and to pollution of their feeding areas and therefore AEM should determine what steps would be taken to protect wildlife (including marine birds) in the event of a spill and incorporate this information into the Meliadine Gold Project Spill Contingency Plan. This should include specific measures to keep wildlife out of a contaminated area, location and specifics of equipment available to do this, measures to be taken if animals do come in contact with the spill, and when such procedures should be used. Having this information outlined and available not only benefits wildlife, but also provides clear direction to field crews on what to do in a spill situation if wildlife is nearby.

EC Recommendations:
EC recommends that AEM identify the steps that would be taken to protect wildlife (including marine birds) in the event of a spill and incorporate this into the Meliadine Gold Project Spill Contingency Plan.

AEM's Response to Recommendation:

AEM thanks EC for this input. While this suggestion comes too late for inclusion in the FEIS, further refinement of the Project specific Spill Contingency Plan, Oil Pollution Emergency Plan and the Risk Management and Emergency Response Plan will continue, should the project be given the green light to proceed to permitting.

AEM is interested to learn more on this subject from EC and would be very open to obtaining EC input/assistance, especially in the form of examples/case studies of how such protective/mitigative measures have been used in other emergency response plans. AEM will incorporate this type of input in the further refinement of its Meliadine Project response plans, should the project be given authorization to proceed into permitting. It is our view that, while emergency response plans can always be improved,

the level of emergency response planning included within the FEIS is sufficient for environmental assessment, as it demonstrates that emergencies have been considered and that plans have been developed to address mitigation steps should an incident occur. AEM will revise/refine/update the Meliadine Project Spill Contingency Plan prior to the commencement of the project and commits to incorporate in the revised plan steps to be taken to protect wildlife (including marine birds) in the event of a spill.

Interested Party:	Environment Canada (EC)	Rec No.:	EC 6.4.7
Re:	Project Related Shipping - Wake Effects on Migratory Birds		

Reference to FEIS: FEIS Volume 8 Marine Environment, Subsection 8.3.4 Pathway Analysis (page 8-91)

Comment made by Interested Party:

Volume 8 Marine Environment, Table 8.3-8 states that "Vessel wakes from near shore vessels may cause shoreline erosion, which can result in adverse effects to marine water quality with associated indirect effects on marine wildlife" and, as an environmental mitigation measure, vessels in Melvin Bay will travel at reduced speeds (≤2 knots).

Ship wake has the potential to alter directly the physical attributes of coastal areas and may also impact birds that nest near the high tide line and birds that forage in the intertidal zone. Ensuring that ship wakes remain at or below mean wave heights produced by wind by adjusting ship speed may help to reduce the spatial extent of impacts from the Project as well as the risk of damaging or destroying bird nests in low-lying coastal areas.

EC Recommendations:

EC recommends that ship speed be reduced sufficiently to ensure that wakes are equal or less than the mean natural seasonal wave height to prevent wake action from negatively impacting migratory bird nests in low lying shoreline habitat.

AEM's Response to Recommendation:

AEM thanks EC for this input. As AEM continues to be of the view that the proposed reduced vessel speeds within Melvin Bay is an appropriate mitigation measure, AEM does not believe at this time that the more general measures recommended by EC are necessary. However, should the Project be approved to proceed to the operational permitting phase, AEM would continue to engage with EC on this important issue and obtain their input/assistance, especially in the form of examples/case studies of how such measures have been used elsewhere. Some of the issues for which AEM would appreciate EC input would include for example: How far off shore does a vessel need to be before such effects are no longer seen?; Can these effects be mitigated by keeping a "safe" buffer zone between the ships and the critical areas of shoreline? We are also interested to know how EC communicates this issue to the commercial shipping companies operating in the waters off Nunavut?

AEM would incorporate this type of input in the further refinement of its Meliadine Project management plans, should the Project be given authorization to proceed into permitting. With assistance from EC on this subject, AEM will work with its contracted shipping company to determine what procedures can be reasonably implemented to provide such protection; however, it is noted that all shipping activities will be undertaken by third party companies and AEM will not be undertaking any shipping activities directly.

Interested Party:	Environment Canada (EC)	Rec No.:	EC 6.4.8
Re:	Migratory Birds and Species at Risk Along the Shipping Route		

Reference to FEIS: Volume 6, SD 6-4 Terrestrial Environment Management and Monitoring Plan, Section 3.1.4, pages 16 and 17; and Volume 8 Marine Environment, Section 8.3.2.2.1.4 (pages 8-75 and 8-76).

Recommendation made by Interested Party:

EC recommendations

- *Species listed on other SARA Schedules or under consideration for listing on SARA, including those designated as at risk by COSEWIC, be considered in the assessment in a similar manner, including the Harlequin Duck; and*
- *The Spill Contingency Plan include mitigation measures to avoid adverse effects to species at risk and migratory birds (including Harlequin Ducks) from spills as well as details regarding monitoring of effects of a spill on species at risk and migratory birds.*

AEM's Response Recommendation:

AEM considers that the general mitigation measures, assessment results and proposed monitoring of effects of a spill presented for marine birds in Volume 8 of the FEIS (see Section 8.3.6.4, p. 8-114 to 8-115; Section 8.3.6.5, p. 8-119 to 8-120; Section 8.3.6.6, p. 8-124; Section 8.3.7.2.3, p. 8-135 to 8-137; Section 8.3.11, p. 8-140 to 8-141) are also applicable to Harlequin Ducks. Therefore, AEM is not proposing to update the FEIS at this time. However, should the Project be given approval to proceed to permitting, future revisions of the Oil Pollution Emergency Plan (SD 8-2) will include mitigation measures to avoid adverse effects to species at risk and migratory birds (including Harlequin Ducks) from spills, as well as details regarding monitoring of effects of a spill on species at risk and migratory birds.

Interested Party:	Transport Canada (TC)	Rec No.:	TC-
Re:	Potential Effects and Mitigation Measures During Marine Shipping		

Reference to FEIS:

- Volume 2 Project Description, Section 2.6.5.5: Interactions, Potential Effects and Mitigation Measures during Marine Shipping (pages 250 to 263).

Comment made by Interested Party:

AEM has proposed the following mitigation measures that can be employed by vessels when approaching marine wildlife:

- *Under no circumstances, other than in the case of an emergency, will ships approach within 300 m of a walrus or polar bear observed on sea ice;*
- *Ships will remain at least 2 km from Marble Island to avoid disturbing seals, walrus and marine birds that might be in the vicinity. This would greatly reduce interactions between marine wildlife and vessels, and also reduce the noise in near-shore areas;*
- *Vessels shall maintain a minimum distance of 300 m from marine mammals engaged in feeding activities;*
- *For all other marine mammal encounters, vessels will not approach within 100 m of a marine mammal;*
- *If marine mammals approach within 100 m of a vessel, the vessel shall reduce its speed and, if possible, cautiously move away from the animal;*

TC Recommendations:

Transport Canada recommends AEM provide details on what mitigation measures will be conveyed to the vessels employed.

In addition to the above recommendation, Transport Canada recommends AEM make clear that the proposed mitigation measures employed by vessels when approaching marine wildlife are, 'subject to safe navigation considerations as determined by the Master of the vessel'.

AEM's Response to Recommendation:

AEM thanks TC for this input. Through its tendering process AEM will communicate the mitigation measures committed to within the FEIS to the shipping companies bidding to supply such marine services to AEM's Meliadine Project so that bidders can both be informed and bid with these constraints fully known and disclosed. Once a successful bidder has been selected, AEM will meet the selected shipping company to further discuss these constraints/requirements and to establish how these requirements can be conveyed to each vessel employed in providing shipping services to the Meliadine Project. AEM will ask the shipping company to develop and implement a procedure to properly communicate operating constraints to the Master of each vessel travelling to Rankin Inlet to supply the Meliadine Project on a trip by trip basis.

AEM acknowledges that the proposed mitigation measures employed by vessels when approaching marine wildlife are, ’subject to safe navigation considerations as determined by the Master of the vessel’.

Interested Party:	**Transport Canada (TC)**	**Rec No.:**	**TC-**
Re:	**Compliance with the Cargo Fumigation and Tackle Regulations (CFTR) for lifting appliances.**		

Reference to FEIS: Volume 8, SD-8-1, Page 5 Shipping Management Plan 1.3 Lightering Procedures 1.3.1 Dry Cargo.

Comment made by Interested Party:

The Proponent has indicated that the spud barges will have a crane with a capacity of about 200 tonnes, thereby allowing it to lift sea cans, other containers and equipment directly off the delivery barges and place them onto trucks.

TC Recommendations:

Transport Canada recommends AEM note that they (or their contractors) must comply with the Cargo Fumigation and Tackle Regulations (CFTR) for lifting appliances.

AEM's Response to Recommendation:

AEM thanks TC for this input. Through its tendering process, AEM will communicate the requirement to comply with the CFTR for lifting appliances to all companies bidding to supply cargo transfer services to AEM's Meliadine Project.

Interested Party:	Transport Canada (TC)	Rec No.:	TC-
Re:	Oil Pollution Emergency Plan		

Reference to FEIS: Volume 8, SD-8-2,Oil Pollution Emergency Plan.

Comment made by Interested Party:

Transport Canada has reviewed the Oil Pollution Emergency Plan (OPEP) provided by the Proponent. This review has revealed the following areas of concern in regards to the submitted OPEP.

- *AEM to demonstrate that they have sufficient response capability to respond to a 5 cubic meter spill (their minimum spill size as a level 2 facility). AEM cannot rely on vessel equipment during a spill resulting from a ship to shore transfer. The equipment list on page 23 of the OPEP does not include equipment listed in the spill scenarios such as skimmers.*
- *Page 16 of the OPEP indicates that outside spill response resources are also available should AEM's and the ships spill response resources prove insufficient. Spill scenarios provided in the OPEP refer to the use of CCG resources. AEM cannot rely on CCG equipment to meet their regulatory requirements under Part 8 of the CSA, 2001.*

AEM will be required to provide an updated and compliant OPEP to Transport Canada prior to the commencement of the Project. The effectiveness of all aspects of the OPEP must be validated through the implementation of a three (3) year cyclical exercise program and regular inspections. AEM is responsible for updating the emergency plan annually and after every oil pollution incident and exercise.

TC Recommendations:

Transport Canada recommends that AEM provide an updated and compliant OPEP to Transport Canada prior to the commencement of the Project.

Transport Canada recommends AEM provide details of outside response resources without incorporating CCG resources to respond to a larger spill.

AEM's Response to Recommendation:

AEM thanks TC for this input. AEM will provide an updated Oil Pollution Emergency Plan, including outside responses resources, prior of the commencement of the Project.

Interested Party:	Aboriginal Affairs and Northern Development Canada (AANDC)	REC No.:	AANDC 4.10
Re:	Unclear Methodology For Selecting Key Community Concerns in the FEIS		

Reference to FEIS:

- FEIS Volume 3, SD 3-1 Public Engagement and Consultation Baseline, Sections 4 – 7
- Guidelines for the Preparation of an Environmental Impact Statement For Agnico Eagle Mines Ltd.'s Meliadine Project (NIRB File No. 11MN034), Guidelines 7.1 and 7.7
- Response to TC #54

Recommendation made by Interested Party:

FEIS, Volume 3, SD 3-1 includes records of community consultations. While AANDC appreciates the inclusion of additional raw data regarding concerns heard in community consultation processes, it remains unclear why some community concerns were chosen as 'key concerns' in SD 3-1 and why others were not. For example lack of communication between the Proponent and local communities, employment selection processes and social impacts related to drug and alcohol abuse appear to have been brought up repeatedly throughout community consultations yet they do not appear as key concerns in Table 7-1 of SD 3-1.

AANDC Recommendations:

AANDC recommends that the Proponent verify that no key concerns are absent in Table 7-1 based on raw data from SD 3-1, particularly regarding communication policies, employment selection processes and social impacts related to drug and alcohol abuse. Where there are absent key concerns, AANDC recommends the Proponent respond and provide commitments consistent with the format in SD 3-1, Table 7-1.

AEM's Response to Recommendation:

AEM's goal in public consultation is to create awareness and understanding of its Meliadine Gold Project, to receive feedback, and to promote participation in the Project. This centers on obtaining the views, concerns, and aspirations held by Nunavummiut on the Project. AEM recognizes that this approach did not easily lend itself to having socio-economic concerns not related to the mine being expressed.

AEM believes all concerns raised at its consultation meetings are important, and recognizes that those listed in Table 7-1 of the SD 3-1, Public Engagement and Consultation Report are not the only concerns expressed at consultation meetings. Table 7.1 is a distillation of all consultation from 1995 to 2013; what is contained in this table does not reflect one event, scoping session, community consultation or negotiation meeting. It merely summarizes the concerns most commonly raised over the consultation record.

Socio-economic concerns held by Nunavummiut are important and AEM sought to address these in the Environmental Impact Statement. Volume 9 of the Final Environmental Impact Statement and associated support documents provide a wealth of socio-economic information and socio-economic commitments made by AEM, in particular:

- SD 9-5 Community Involvement Plan outlines the methods and practices AEM intends to put forward to maintain and enhance a two-way communication between the company and the public/communities. More specifically, it outlines means for collaboration on decisions having the potential to affect people.

  Additionally, AEM recognizes the rich visual and oral tradition of Inuit. Information is preferably communicated at community meetings and workshops. Similar and appropriate means will be used for communicating effects and risks, monitoring results, and the Project's related information on economic opportunities, community contributions, and social, cultural and ecological conditions. Finally, AEM recognises that meaningful consultation and communication builds trust, and this leads to sustained constructive relationships, which foster the development of effective ways of sharing information with communities and individuals, and provides clear procedures that maximize community and individual participation.

  AEM remains committed to engaging in open and transparent communication, and in the reporting of our policies and programs to our stakeholders wherever AEM operates.

- AEM policy to favour employment of people from Kivalliq communities is highlighted in SD 9-4 Human Resources Plan. Additionally, the Inuit Impact Benefit Agreement is expected to include clauses favouring first preference being given to Kivalliq Inuit beneficiaries for employment at the Meliadine Gold Mine. This will have a significant bearing on AEM's employment selection process. Clear communication on hiring and recruitment procedures and policies will be made widely known throughout the Kivalliq region so as to encourage individuals to apply for work, no matter what their qualifications.

- AEM is cognisant of the social impact that drug and alcohol abuse is having on Nunavut. Abuse of alcohol and drugs has negative effects on all of the economic, social, cultural, and health outcomes. Promoting health and safety is a core value of AEM. AEM does not have a systematic pre-hiring or workplace drug- or alcohol-testing policy. Nevertheless, AEM recognizes that drug and alcohol abuse can affect employees' health and productivity, potentially leading to monetary loss, absenteeism, higher medical costs, more accidents and injuries. Thus, AEM is committed to offering individualized or personalized support to help employees coping with their self-recognized substance abuse problems.

Interested Party:	Aboriginal Affairs and Northern Development Canada (AANDC)	Rec No.:	AANDC 4.15
Re:	Proposed Work Readiness and Life Skills Traing Program		

Reference to FEIS:

- FEIS Volume 9, SD 9-2 Socio-Economic Management Plan, Section 2.3 Access to Training Programs
- Response to TC #87

Recommendation made by Interested Party:

In Volume 9, SD-4 Human Resources Plan the Proponent outlines that training and apprenticeship opportunities will be determined during IIBA negotiations and outlined in the final IIBA, however there is a brief description in sections 2.4, 2.5 and 2.6 of potential Cross-Cultural Training Programs, Life Skills Training Programs and Training Partnerships. Should there be additional details regarding these training programs prior to the final hearing these should be released for the benefit of reviewers, including any information on topics, modules and information contained in the training programs. Furthermore, once training programs have commenced, the Proponent is encouraged to work with the Socio-Economic Working Group proposed in Technical Comment 4.20 Term and Condition #2 to monitor the training outcomes in the socio-economic monitoring program proposed in Technical Comment 4.20 Term and Condition #3.

AANDC Recommendation:

The Proponent is encouraged to release any available information regarding training programs and plans in advance of the final hearing. Once training programs have commenced, the Proponent is encouraged to work with the Socio-Economic Working Group proposed in Technical Comment 4.8 Term and Condition #2 to monitor the training outcomes in the socio-economic monitoring program proposed in Technical Comment 4.8 Term and Condition #3.

AEM's Response to Recommendation:

AEM has shared extensive details on its Meadowbank training programs with its partners in both the development and delivery of these programs; specifically the Kivalliq Mine Training Society, Human Resources and Skill Development Canada, the Kivalliq Inuit Association, Kivalliq Partners in Development and with the Kivalliq Socio-Economic Monitoring Committee. These training programs were developed, and in many cases are being delivered, with the full involvement of our partners, without whose help

and investments in both, money, experience and time, these programs would not have achieved the success that they have.

However, these referenced training initiatives were developed and implemented for AEM's Meadowbank Mine. No specific training programs have been developed for the Meliadine Project yet. It is AEM's intent (as stated in the FEIS) to transfer the successful training programs implemented at Meadowbank to the Meliadine Project once the Project commences commercial production. These training programs are not static. They tend to evolve over time as AEM and its training partners learn from what has worked and what has not worked. Consequently, AEM expects that the training syllabus that is in use today will change over the next 4 years, as the earliest date at which the Meliadine Project could enter commercial production will be 2018. AEM will not commit resources to the development of specific Meliadine training programs until after the Project has been approved to move into commercial production.

Consequently, AEM does not see the value in distributing this information to all interveners at this late date in the environmental assessment process. AEM also does not see how the requested level of detail could impact the NIRB assessment process outcomes. AEM is committed to delivering the training as referenced in Volume 9 of the FEIS.

Monitoring the outcomes of these training initiatives is of keen interest to AEM and its training partners as they seek to ensure that there is value for their respective investments and to learn how to improve/modify these programs for future delivery. The mechanisms for assessing these outcomes are the subject of discussion amongst the partners involved in the training, and AEM agrees that there is a role for the Kivalliq SEMC in helping in this assessment.

Interested Party:	Aboriginal Affairs and Northern Development Canada (AANDC)	Rec No.:	TC-AANDC-1
Re:	Water Quality		

Reference to FEIS: Volume 1, Popular Summary, page 1lxxiv, Paragraph 4

Recommendation made by Interested Party:

Note comments are based on response to previous Recommendation from AANDC of the DEIS (TC-AANDC-1) as follows:

> *TC-AANDC-1: AANDC requests that the Proponent commit to providing statements in the summary and main body of the text that are consistent with the actual conditions and/or predicted conditions for surface water quality.*
>
> *AEM Response: Thank you for cross checking between sections. For the final EIS, we will review the text in both the popular summary and the water quality assessment chapter, check for consistency, and, if necessary, include additional text for further clarity.*

AANDC agrees with the response from the Proponent, however, there is no evidence of change in the FEIS. See 4.1 in Narrative Comments.

AEM's Response to Recommendation:

In response to TC-AANDC-1, AEM provided Table 1.0-C3 in Volume 1 that summarizes all monitoring commitments, which is referenced in Volume 1, Section 1.6.1. Most compliance monitoring is related to water quality; therefore, when the FEIS was updated, this information was considered too detailed for the plain language summary (Volume 1). Due to the word count limitations, a table in the appendix of Volume 1 was determined to be the most effective way to relay information related to compliance monitoring. The conceptual water monitoring program is also described in Section 8 of SD 2-6 Surface Water Management Plan.

The narrative for 4.1 referenced in AANDC 1 (Appendix B Table 1. Tabular Summary of AANDC review of AEM Responses to Information Requests, Technical Comments, and Commitments Table) is related to "*Insufficient Geothermal Analysis and Monitoring Plan of Permafrost Temperatures and Thickness*" and is assumed to be a typographical error.

Interested Party:	**Aboriginal Affairs and Northern Development Canada (AANDC)**	**Rec No.:**	**TC-AANDC-12**
Re:	**FEIS Document Map**		

Reference to FEIS: DEIS Volume 2, SD 2-5 Environmental Management and Protection Plan, Section 3.2; NIRB Guidelines 9.3; Response to Recommendation#2

Recommendation made by Interested Party:

Note comments are based on response to previous Recommendation from AANDC of the DEIS as follows:

> *AANDC requests that the Proponent provide a document map for the EIS in all volumes.*
>
> *AEM Response: AEM will provide a document map for the FEIS in all volumes.*

AANDC has noted the Proponent's response, but for clarity seeks additional consideration as noted in the Narrative Introduction.

AEM's Response to Recommendation:

FEIS document maps were provided as a binder insert with each hardcopy volume of the FEIS. The document map was not included in the individual FEIS electronic files due to file size considerations and based on the understanding that reviewers can have the electronic version of the document map open while simultaneously reviewing other electronic files. Based on the above, AEM feels this comment has been suitably addressed and no further action is required.